

Order Number: MOP02090053S2

Service Manual

Microwave Oven



NN-A872SBBPQ

32L Enamel

Stainless Steel

United Kingdom

Please file and use this manual together with the service manual for Model Nos. NN-A850CB, Order Number MOP0090015C2

SPECIFICATIONS

Power source :	240VAC Single Phase, 50Hz
Power requirements:	Micro: 1300W Grill:1560W Convection: 1330W Combination: 2840W
Output: (IEC60705)	Microwave : 1000W Grill: 1500W Convection: 1250W
Microwave Frequency	2450Mhz
Timer:	99 min 99 second
Oven cavity size	32L
Outside dimensions:	530 mm (W) X 508 mm (D) x 344 mm (H)
Inside dimensions	350 mm (W) x 360 mm (D) x 250 mm (H)
Weight	20.5 Kg
Inverter power Supply	
Pbf	This product uses Pbf (Lead free solder)
Output Power Supply	IEC60705 Test procedure
Specifications subject to change without notice	

**© 1995 Matsushita Electric Industrial Co., Ltd. All rights reserved.
Unauthorized copying and distribution is a violation of law.**

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

1. PARTS LIST

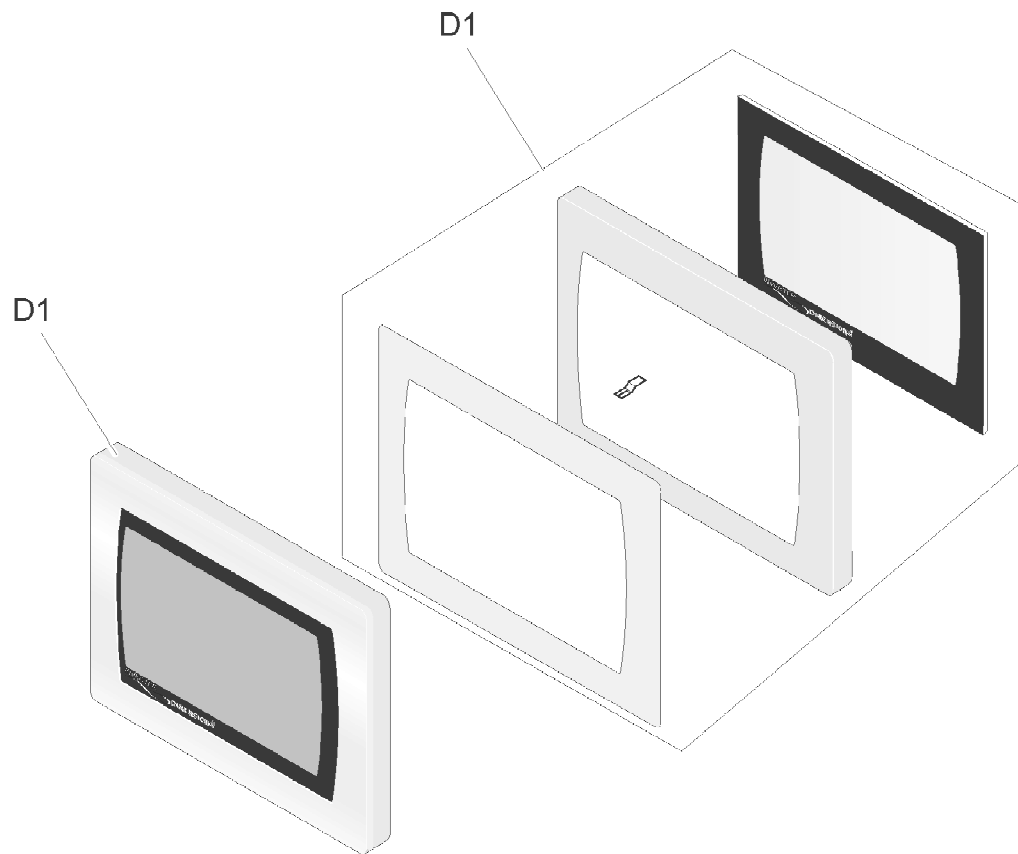
When ordering parts quote the complete part number. Do not quote the description of the part without the part number.

Components identified by the symbol  have special safety characteristics, only replace these parts with parts supplied by the original manufacturer.

For parts not shown in this simplified service-manual, refer to the service-manual parts list for the model NN-A850CBBPQ

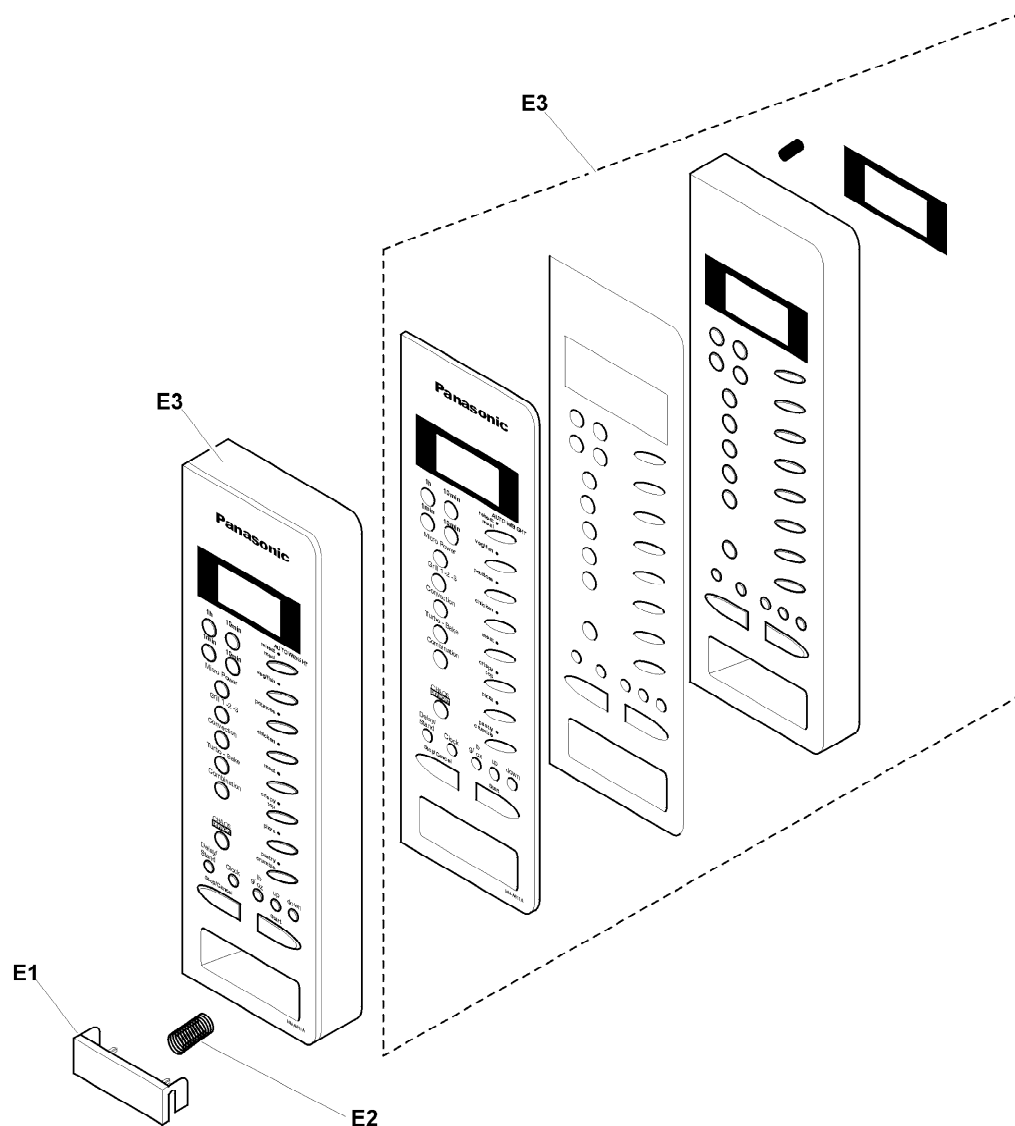
Ref. No.	Part No.	Part Name & Description	Qty	Remarks
75	E110D4V30SBP	OUTER PANEL	1	

2. DOOR ASSEMBLY



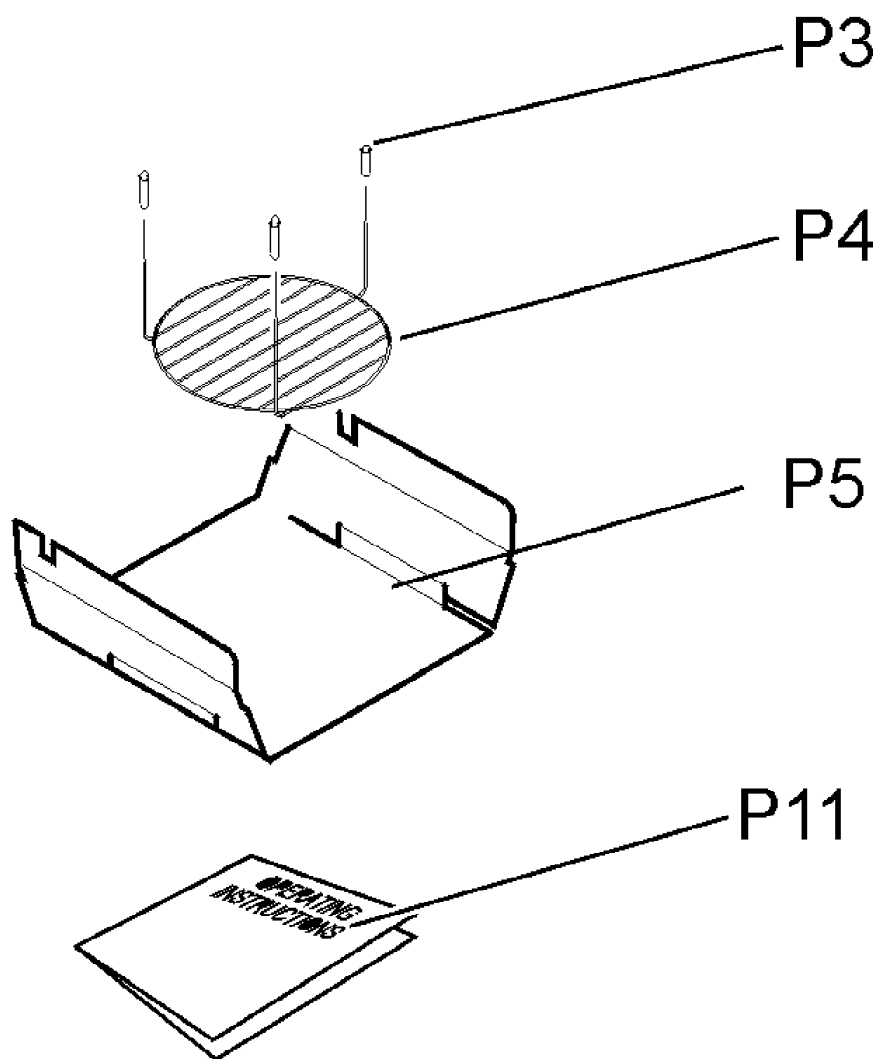
Ref. No.	Part No.	Part Name & Description	Qty	Remarks
D1	E302A4V30SBP	DOOR A SCREEN B FACIA ASSEMBLY	1	

3. ESCUTCHEON BASE ASSEMBLY



Ref. No.	Part No.	Part Name & Description	Qty	Remarks
E1	E80724V30SBP	DOOR OPENING BUTTON	1	
E2	AEE80378A1AG	DOOR OPENING BUTTON SPRING	1	
E3	E800S4V30SBP	ESCUTCHEON BASE ASSEMBLY	1	

4. PACKING AND ACCESSORIES



Ref. No.	Part No.	Part Name & Description	Qty	Remarks
P3	E06435870SP	WIRE RACK FOOT	1	
P4	E060V5870SP	WIRE RACK	1	
P5	E01089000GP	TRAY PACKING	1	
P11	E00034V30BT	COOKBOOK/OPERATING INSTRUCTIONS	1	

Order Number MOP00090015C2

Service Manual

Microwave Oven



NN-A880WB / NN-A850WB / NN-A850CB



SPECIFICATIONS

Specification

Power Source	240VAC Single Phase 50Hz
Power Requirements	Micro : 1300W Grill: 1560W Convection: 1330W Combination: 2480W
Output (IEC705-88)	Micro : 1000W Grill: 1400W Convection: 1200W
Microwave Frequency	2450Mz
Timer	99 Minutes 99 Seconds
Oven Cavity Size	32L
Outside Dimensions	530mm (W) x 508mm (D) x 344mm(H)
Inside Dimensions	350mm (W) x 360mm (D) x 250mm(H)
Weight	20.5Kg
Specifications subject to change without notice	

© 1995 Matsushita Electric Industrial Co., Ltd. All rights reserved.

Unauthorized copying and distribution is a violation of law.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

1. Inverter Warning

The inverter board looks like a regular PCB, however, this PCB drives the magnetron tube using very high voltages and current.

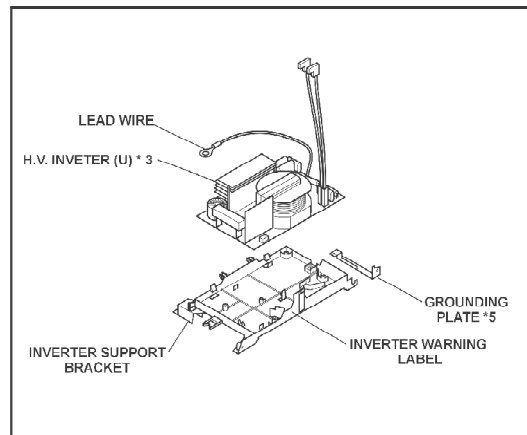
It has

1. Very high voltage and high current
2. An Aluminium heat sink that becomes very hot
3. The capacitors on the inverter circuit will contain a high voltage charge even when the oven is not operating.

Do not

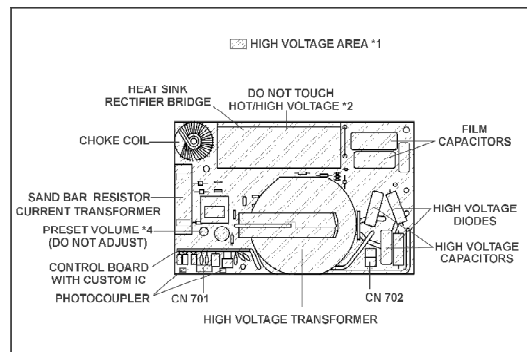
1. Do not touch the circuitry as it contains very high voltages. When replacing the board please take extreme care to avoid possible electric shock. High voltages may remain in the circuit.
2. Do not touch the aluminium heat sink as it will become very hot. It also contains high voltages.
3. Do not attempt to repair the inverter PCB as this can be very dangerous. Replace the high voltage inverter circuit as a complete unit. Return the old unit fully repacked in the original shipping box and completed paper work.
4. Do not adjust or tamper with the preset volume on the inverter board. It is very dangerous to adjust this preset without proper test equipment.
5. Do not test the oven while the inverter grounding strip or screws are loose. It is very dangerous to operate the inverter circuit board without a proper ground connection.

Figure 1



Inverter Gounding

Figure 2



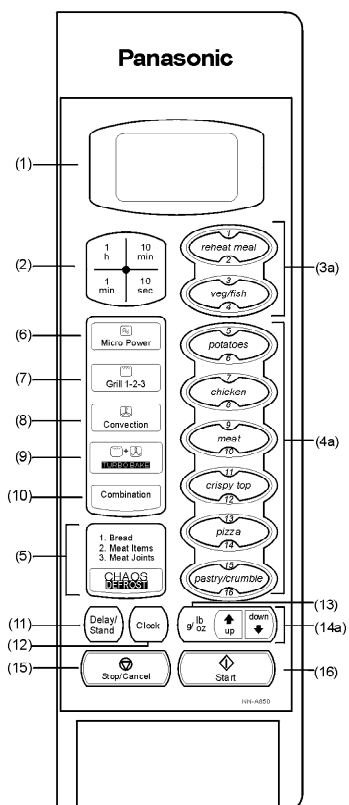
Inverter PCB layout

2. Feature Chart

Function	NN-A880WB	NN-A850WB NN-A850CB
Microwave	6	6
Grill	3	3
Convection	17	17
Combination	YES	YES
Sensor reheat	2	-
Sensor cook	2	-
Sensor combination	4	-
Weight defrost	3	3
Weight combination	8	12
Weight reheat	-	2
Weight cook	-	2
Stage cooking	3	3
Delay/Stand	YES	YES
More/Less	YES	NO
Kg-> lb/oz	YES	YES
Clock	12H	12H
Word prompt	English	English
Function	NN-A880WB	NN-A850WB NN-A850CB
Step by Step	LED	LED

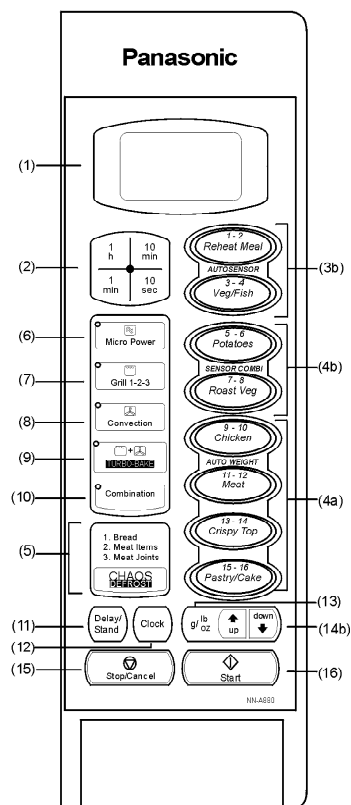
3. Control Panel

NN-A850



- (1) Display Window
- (2) Time Pads
- (3a) Auto Weight Microwave Programs
- (3b) Auto Sensor Microwave Programs
- (4a) Auto Weight Combination Programs
- (4b) Auto Sensor Combination Programs
- (5) Auto Weight Defrost Programs
- (6) Microwave Power Setting
- (7) Grill Setting
- (8) Convection Pad
- (9) TURBO-BAKE pad
- (10) Combination Pad
- (12) Clock Pad:
This can be used to delay a cooking program for upto 9hrs 99 mins.
- (13) lb/oz Conversion Pad
- (14a) Weight Selection Pad
- (14b) More/Less Pad
- (15) Stop/Cancel Pad:
Before Cooking:
one press clears your instructions
During cooking:
one press temporarily stops the cooking program. Another press cancels all of your instructions and the time of the day will appear in the display.
- (16) Start Pad:
Press to start operating the oven. If during cooking the door is opened or stop/cancel pad is pressed once, start pad has to be pressed again to continue cooking.

NN-A880



4. Operation And Digital Programmer Circuit Test Procudure

4.1 Setting the Clock

OPERATION	SCROLL DISPLAY
1. Plug the power supply cord into the wall outlet	WELCOME TO PANASONIC REFER TO OPERATING INSTRUCTIONS BEFORE USE
2. Press the clock pad	SET TIME
3. Enter the time of day	1:25 PRESS CLOCK
4. Press the clock pad	1:25

4.2 Microwave Cooking

OPERATION	SCROLL DISPLAY
1. Place a water load in the oven	■■■■■
2. Press Micro power once to set high power	HIGH SET TIME
3. Set time at 10 sec. by pressing 10 sec. once	HIGH 10 sec PRESS START
4. Press Micro power pad 3 times to set medium power	MEDIUM SET TIME
5. Set pad for 1 minute by pressing 1 min. pad once	1 00 min sec PRESS START MEDIUM
6. Press the start pad	10 sec
7. When the first stage cooking has elapsed oven automatically switches to second stage	1 00 min sec
8. When second stage cooking has elapsed oven beeps 5 times and shuts off	OPEN DOOR

4.3 Auto Weight Defrost

OPERATION	SCROLL DISPLAY
1. Select the desired program	1 BREAD SET WEIGHT
2. Press g or lb and oz	Lb Oz 1 BREAD SET WEIGHT
3. Enter the weight by pressing the Up & Down pads	1 Lb 10 Oz PRESS START
4. Select the desired program	4 54 min sec

4.4 Delay Stand

OPERATION	SCROLL DISPLAY
1. Set power level and time	■■■■■
2. Press Stand	STAND SET TIME
3. Set standing time	H1 00 PRESS START
4. Press Start	10 00 min sec 10 00 min sec

4.5 Delay Start

OPERATION	SCROLL DISPLAY
1. Press Delay	DELAY START SET TIME
2. Set delay time	1H 00 CHOOSE COOKING MODE
3. Set power level and time	■■■■■
4. Press start pad	1H 00

4.6 Grill Operation

OPERATION	SCROLL DISPLAY
1. Select grill power press once for grill 1	GRILL 1 PRESS START TO PREHEAT OR SET TIME
2. Set cooking time	1 00 min sec
3. Press start	1 00 min sec

4.7 Convection Operation

OPERATION	SCROLL DISPLAY
1. Press convection pad to select oven temperature	150°C PRESS START TO PREHEAT OR SET TIME
2. Press start to preheat	P
3. Press time pads to enter cooking time	1H 00 PRESS START 150°C
4. Press start pad	1H 00

4.8 Turbo Bake Operation

OPERATION	SCROLL DISPLAY
1. Press turbo bake pad to select oven temperature	150 C GRILL 2 PRESS START
2. Press grill pad to select power	GRILL 3 PRESS START TO PREHEAT OR SET TIME 150 C
3. Press start to preheat	P
4. Press time pads to enter cooking time	H 10 PRESS START 150 C GRILL 3
5. Press start	10 00 min sec

4.9 Combination Cooking (Convection and Microwave)

OPERATION	SCROLL DISPLAY
1. Press combination pad	COMBINATION CHOOSE FIRST COOKING MODE
2. Press convection pad to select oven temperature	150 C SELECT MICROPOWER COMBINATION
3. Select micro power	MEDIUM SET TIME COMBINATION 150 C
4. Press start if preheating	P 59 sec
5. Set cooking time	H 10 PRESS START COMBINATION 150 C MEDIUM
6. Press start pad	10 00 min sec

4.10 Combination Cooking (Grill and Microwave)

OPERATION	SCROLL DISPLAY
1. Press combination pad	COMBINATION CHOOSE FIRST COOKING MODE
2. Press grill pad to select oven temperature	GRILL 1 SELECT MICROPOWER COMBINATION
3. Select micro power	MEDIUM PRESS START TO REHEAT OR SET TIME COMBINATION GRILL 1
4. Press start if preheating	P
5. Set cooking time	H 10 PRESS START COMBINATION GRILL 1 MEDIUM
6. Press start pad	10 00 min sec

4.11 Combination Cooking (Turbo Bake and Microwave)

OPERATION	SCROLL DISPLAY
1. Press combination pad	COMBINATION CHOOSE FIRST COOKING MODE  
2. Press Turbo Bake pad to select oven temperature	150 C    GRILL 2 SELECT MICROPOWER COMBINATION
3. Select micro power	MEDIUM    SET TIME COMBINATION 150 C GRILL 2
4. Press start if preheating	 P   
5. Set cooking time	H 10    PRESS START COMBINATION 150 C GRILL 2 MEDIUM
6. Press start pad	 10 00    min sec

4.12 Auto Weight Cook Programs NN-A850WB, NN-A850CB

OPERATION	SCROLL DISPLAY
1. Select the desired auto weight cook program	1 REHEAT CHILLED MEAL FIRST COOKING MODE  SET WEIGHT
2. Press to select grams or pounds and ounces	LB OZ  1 REHEAT CHILLED MEAL
3. Enter the weight by pressing the up and down pads	1 LB 2 OZ  PRESS START
4. Press start	 5 57  min sec

4.13 Auto Weight Cook Program NN-A880WB

OPERATION	SCROLL DISPLAY
1. Select the desired auto weight cook program	1 REHEAT CHILLED MEAL FIRST COOKING MODE  SET WEIGHT
2. Press to select grams or pounds and ounces	LB OZ  1 REHEAT CHILLED MEAL
3. Enter the weight by pressing the up and down pads	1 LB 2 OZ  PRESS START
4. Press start	 5 57  min sec

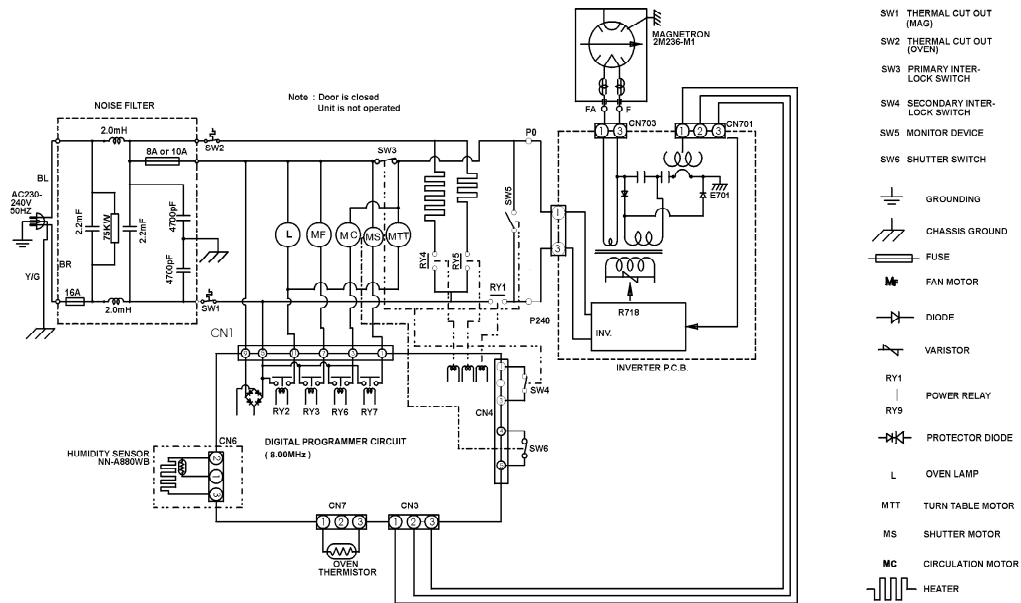
4.14 Auto Sensor and Sensor Combi Programs for NN-A880WB

OPERATION	SCROLL DISPLAY
1. Select the desired sensor program	4. FRESH FISH  PRESS START
2. Press start	4. FRESH FISH

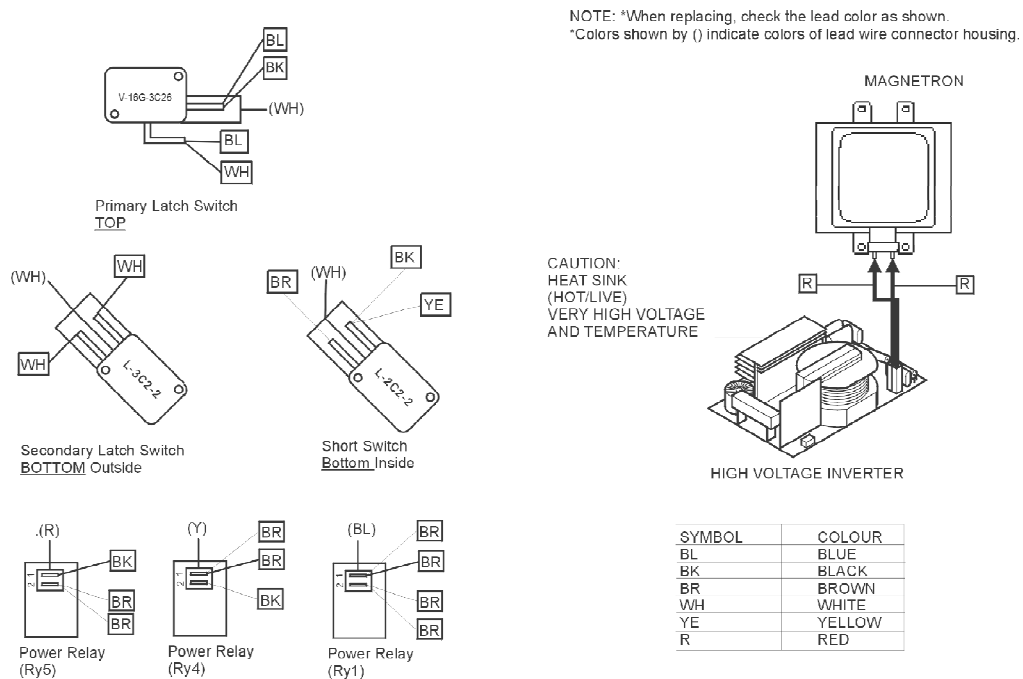
Note: If you select an auto sensor program directly after plugging the oven in an initial warm up period will automatically count down in the display window, after which the sensor program can be operated

Note : The sensor programs cannot be used when the oven is hot. If a second sensor program is selected "HOT" will appear in the display.

5. Schematic Diagram



6. Wiring Diagram



7. Description of Operating instruction

7.1. Variable power cooking control

The HIGH VOLTAGE INVERTER POWER SUPPLY controls the output power by a signal from the digital Programmer circuit DPC. The power relay (RY1) turns on to supply power to the inverter circuit. The level of output power is controlled by the drive signal level from the inverter circuit.

NOTE1: The ON/OFF time ratio does not correspond with the percentage of microwave power since approximately 2 seconds are required for heating the magnetron filament. / **NOTE:** 2 If microwave cooking is over 8 minutes on HIGH power, the fan motor rotates for 1 minute after cooking to cool the oven and electrical components.

Duty cycles for microwave cooking

	Output	Duty ON/OFF	
		ON time	OFF time
High	1000W	22"	0"
Defrost	440W	16"	6"
Medium	600W	22"	0"
Low	440W	22"	0"
Simmer	440W	15"	7"
Warm	440W	8"	14"

7.2. Grill Cooking

The digital programmer circuit controls the grill power by operating the power relay RY4 in the sequence shown in the table below

Duty cycles for Grill Cooking

	Duty ON/OFF	
	ON Time	OFF Time
Grill 1	66"	0"
Grill 2	54"	12"
Grill 3	42"	24"

7.3. Auto weight defrost, Auto weight Cook

When an auto control feature is selected and the start pad pressed:

1. The digital programmer circuit determines the power level and the cooking time and indicates the operating state in the display. The table shows the corresponding cooking times for each category and its respective weight.
2. When the cooking time in the display window has elapsed, the oven turns off automatically via the control signal from the digital programmer circuit.

Note: After auto cooking if the oven temperature is over the predetermined temperature the fan motor rotates to cool the oven and its components.

Auto Weight Defrost NN-A880WB NN-A850WB NN-A880CB

Category	1st Touch Weight	Cooking Time
Bread	100	45s
Meat Items	200	3m 40s
Meat Joints	400	6m 20s

Auto weight Cook NN-A880WB

Category	1st Touch Weight	Cooking Time
9.Whole Chicken	1000	18m 20s
10.Chicken Portions	300	9m 30s
11.Beef/Lamb	500	14m 40s
12.Casserole	800	56m 40s
13.Chilled Crispy Top	300	10m
14.Frozen Crispy Top	300	14m
15.Bake Pastry	600	15m
16.Bake Cake	400	11m 40s

Auto weight Cook NN-A850WB NN-A850CB

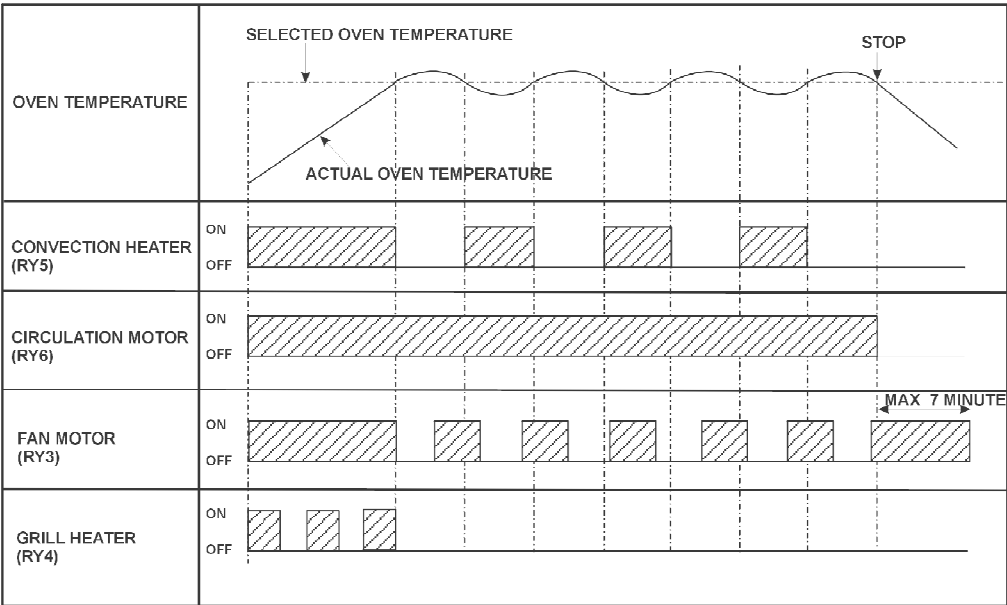
Category	1st Touch Weight	Cooking Time
1.Chilled Meal	300	3m 30s
2. Frozen Meal	300	6m 20s
3. Fresh Vegetables	100	2m 20s
4. Fish	100	1m
5. Jacket Potatoes	200	16m 30s
6.Frozen Potato Products	200	10m
7. Whole Chicken	1000	18m 20s
8. Chicken Portions	300	9m 30s
9. Beef/Lamb	500	14m 40s
10. Casserole	800	56m 40s
11. Chilled Crispy Top	300	10m
12. Frozen Crispy Top	300	14m
13. Chilled Pizza	200	7m 40s
14. Frozen Pizza	200	10m
15. Bake Pastry	600	15m
16. FruitCrumble	500	18m 20s

7.4. Convection Cooking

1. The digital programmer circuit operates the power relays RY3,RY5 and RY6 in the sequence as shown in the figure below.
2. When the oven reaches a predetermined temperature the digital programmer circuit stops supplying power to relay RY5, resulting in the convection heater turning off.
3. When the temperature drops below the predetermined temperature, the digital programmer circuit supplies power to

power relay RY5 resulting in the convection heater turning on.
Note: After the convection process, if the oven temperature is higher than the predetermined temperature, the fan motor rotates to cool the electronic components and the oven.

Figure 1



Convection Cooking Duty Cycles

7.5. Combination Cooking

Combination cooking is achieved by operating the microwave and heater modes together during one cooking cycle. There are three combination modes.

1. Combination (convection and microwave)
2. Combination (grill and microwave)
3. Combination (grill, convection and microwave)

The digital programmer circuit operators the power relays as shown in the figures below. When the oven temperature reaches the predetermined temperature, the digital programmer circuit stops supplying power to relay (RY5) resulting in the convection heater turning off. During this time the digital programmer circuit continues to operate relay (RY1) so that microwave activity continues at the duty cycle selected. The inverter control signal level is also maintained. The microwave activity continues to cycle until the entire cooking program is completed.

When the oven temperature drops below the selected temperature, the digital programmer circuit operates power relay (RY5) switching on the heater elements.

In the case of grill combination the sequence applies with the digital programmer circuit switching power relay (RY4) to control, the grill elements.

With convection, grill and micro power combination. The grill elements and convection elements are operated alternatively whilst the oven temperature is above the selected level.

Convection And Microwave Combination Duty Cycles

Convection Heater		Micropower		
100 - 250 C		OUTPUT	ON	OFF
	Medium	600W	66	0
	Low	440W	66	0
	Simmer	440W	45	21
	Warm	440W	24	42

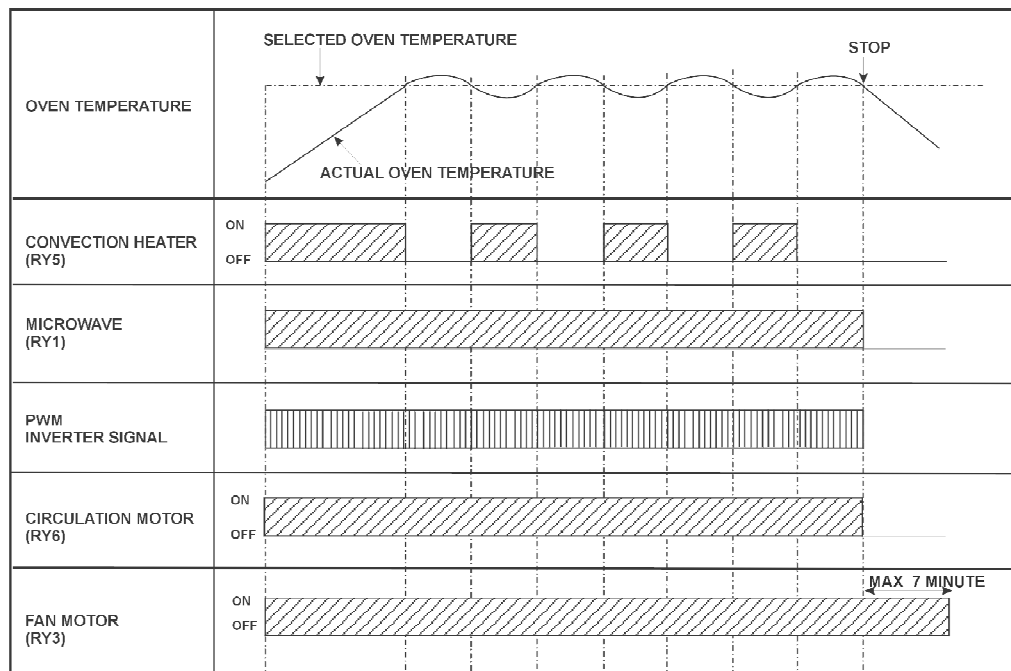
Grill And Microwave Combination Duty Cycles

Grill Heater			Micropower			
	ON	OFF		OUTPUT	ON	OFF
Grill 1	66	0	Medium	600W	66	0
Grill 2	48	18	Low	440W	66	0
Grill 3	36	30	Simmer	440W	45	21
			Warm	440W	24	42

Grill Convection And Microwave Combination Duty Cycles

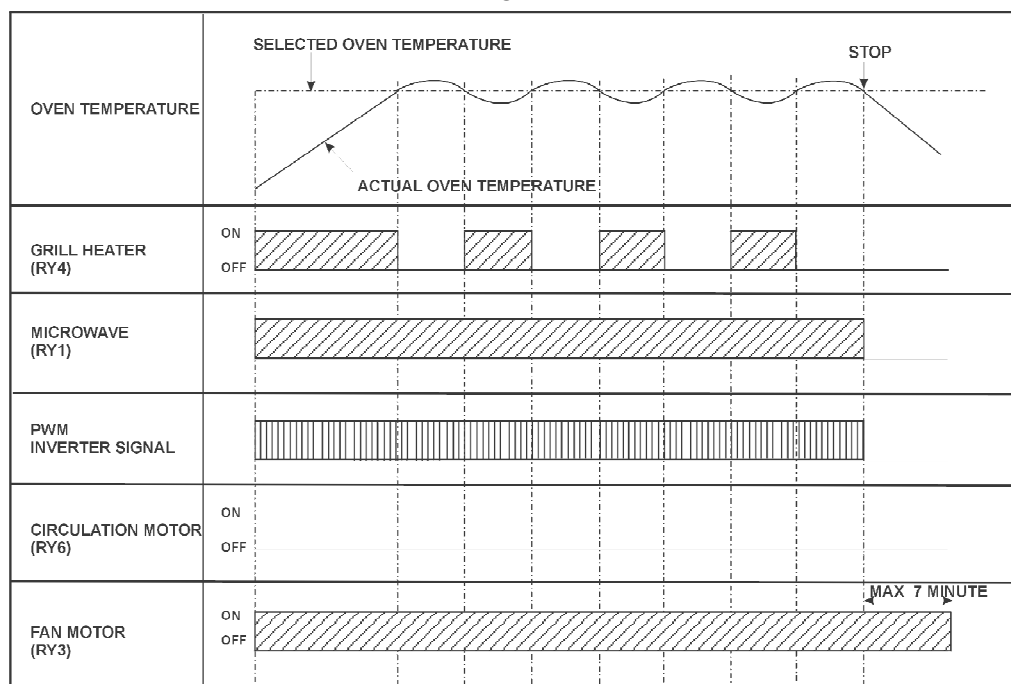
Convection Heater	Grill Heater		Micropower			
100 - 250 C		ON OFF		OUTPUT	ON	OFF
	Grill 1	66 0	Medium	600W	66	0
	Grill 2	48 18	Low	440W	66	0
	Grill 3	36 30	Simmer	440W	45	21
			Warm	440W	24	42

Figure 1

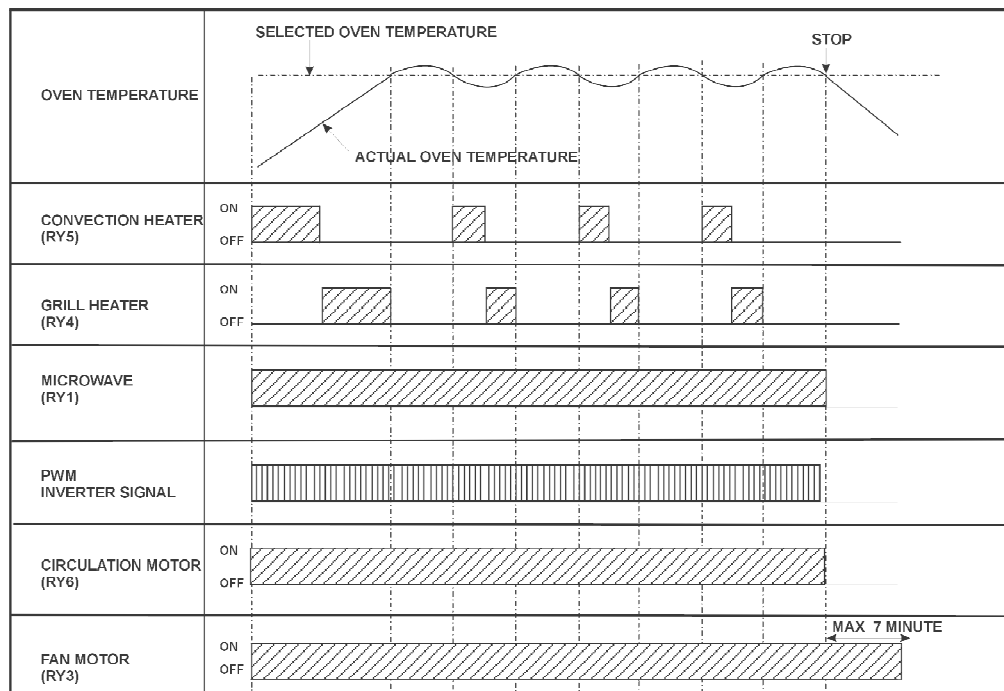


Convection and microwave duty cycles

Figure 2



Grill and microwave duty cycles



Grill, Convection and microwave duty cycles

7.6. One touch Auto sensor cooking NN-A880WB

Auto sensor cook is a revolutionary way to cook by microwave without setting a power level or selecting a time. All that is necessary is to select an auto sensor program before starting to cook. /

Understanding Auto sensor cooking / / As food cooks, a certain amount of steam is produced. If the food is covered, this steam builds up and eventually escapes from the container. In auto sensor cooking, a carefully designed instrument, called the humidity sensor element, senses the escape of steam. then, based upon the auto sensor program selected, the unit will automatically determine the correct power level and the proper length of time it will take to cook the food.

NOTE: Auto sensor cooking is successful with the foods and recipes found in the auto sensor cooking guide. Because of the vast differences in food composition, items not mentioned in the cooking guide should be prepared in the microwave oven using the power select and time features. Please consult variable power microwave cook book for procedures.

/ Explanation of the auto sensor cooking process /

1. The shaded columns in figure 1 indicate when the humidity sensor heater is on.
2. During the 30 second period there is no microwave activity. When calculating the T2 time by using the formula below, make sure this 30 seconds is subtracted from the T0 time.
3. $T1 \text{ time } T0 \text{ time} - 30 \text{ seconds}$
4. T2 time when the steam escapes from the cooking container placed in the oven, the humidity sensor detects it and the microprocessor calculates the balance of cooking time. This T2

time is then shown in the display and begins counting down.

Balance of cooking (T2 time)

The balance of cooking time which is called T2 time, can be calculated by the following formula.

$T2 \text{ time (in sec.)} = T1 \text{ time} \times K \text{ factor}$

NOTE: Remember, the T1 time starts after the start pad is tapped. The coefficient K is programmed into the microprocessor memory and they are listed in the following tables along with the P1 and P2 power.

NOTE: When "More" or "Less" pad is selected, the K factor varies resulting in T2 time to be increased or decreased.

Calculating the T2 time

Example 1: If the t1 time is measured to be 2 minutes and 40 seconds, and the auto sensor program is selected is sensor reheat. Fish (Program 4)

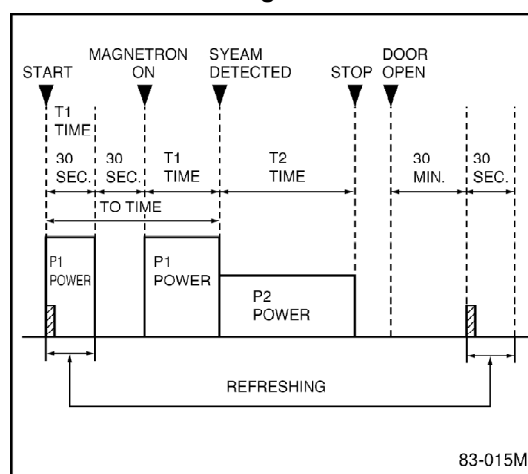
$T2 = T1 \times K$

$= 2 \text{ min. and } 40 \text{ sec.} \times 0.3$

$= 48 \text{ sec.}$

Category	P1 POWER	P2 POWER	K FACTOR STANDARD
1. Chilled meal	HIGH	HIGH	1.6
2. Frozen meal	MED	HIGH	0.9

Figure 1



Auto sensor cooking

8. Cautions to Be Observed When Troubleshooting

Unlike many other appliances, the microwave oven is a high voltage, high current device. Though it is free from danger in ordinary use, extreme care should be taken during repair.

Caution

Servicemen should remove their watches whenever working close to or replacing the magnetron.

8.1. Check the grounding

Do not operate on a two wire extension cord. The microwave oven is designed to be used when grounded. It is imperative, therefore, to ensure the appliance is properly grounded before beginning repair work.

8.2. Inverter Warnings

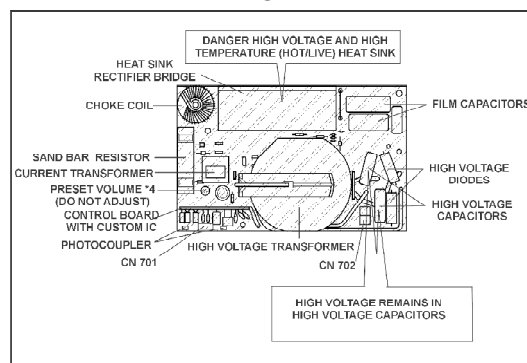
DANGER, HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LINE) OF THE INVERTER POWER SUPPLY (U)

This high voltage inverter power supply handles very high voltage and very high current for the magnetron tube. Though it is free from danger in ordinary use, extreme care should be taken during repair. As you can see, it looks like a TV flyback transformer, however, the current is extremely large and is therefore, dangerous due to this high current and high voltage.

The aluminium heat sink is also energized with high voltage (HOT), so do not touch when the AC input terminal is connected. The power devices (Collector) is directly connected to the aluminium heat sink.

The aluminium heat sink may be (HOT) due to heat energy, therefore, extreme care should be taken during servicing.

Figure 1

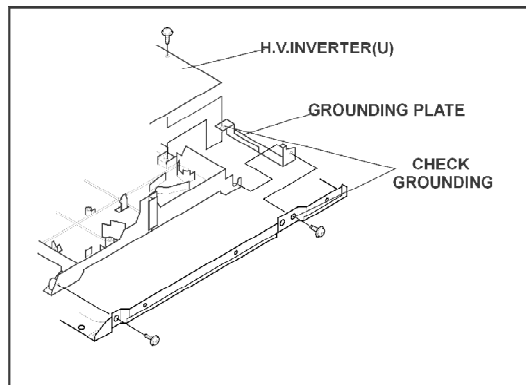


HV Inverter warning

WARNING FOR INVERTER POWER SUPPLY (U) GROUNDING

Check the high voltage inverter power supply circuit grounding. This high voltage inverter power supply circuit board must have a proper chassis ground, the inverter grounding bracket must be connected to the chassis. If the inverter board is not grounded it will expose very high voltages and cause extreme DANGER! Be sure that the inverter circuit is properly grounded via the inverter earth bracket.

Figure 2



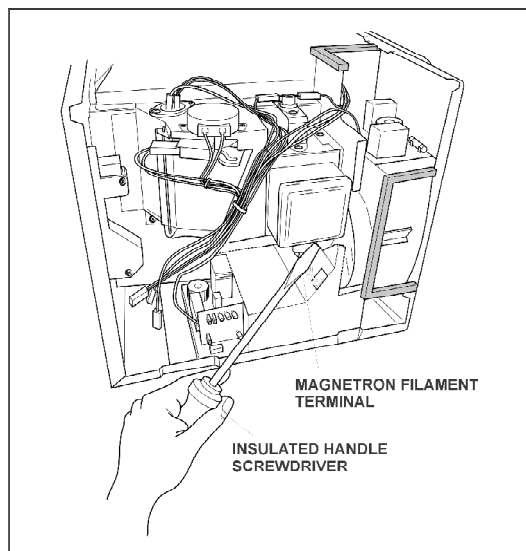
Inverter Grounding

WARNING! DISCHARGE THE HIGH VOLTAGE CAPACITORS

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitors in the inverter power supply circuit board.

When replacing or checking parts, remove the power plug from the outlet and short the inverter output terminal of the magnetron filament terminals to the chassis ground with an insulated handle screwdriver to discharge. Please be sure to touch the chassis ground side first and then short to the output terminals.

Figure 3



Discharging the high voltage capacitors

WARNING

There is high voltage present with high current capabilities in the circuits of the primary and secondary windings, choke coil and heat sink of the inverter. It is extremely dangerous to work on or near these circuits with the oven energized. DO NOT measure the

voltage in the high voltage circuit including the filament voltage of the magnetron.

WARNING

Never touch any circuit wiring with your hand nor with an insulated tool during operation.

8.3. When parts must be replaced, remove the power plug from the outlet.

8.4. When the 10A fuse is blown due to the operation of the short switch:

WARNING

When the 10A 250V fuse is blown due to the operation of the short switch, the primary latch switch and short switch must be replaced. It is also important to change the power relay 1 (RY1) when the continuity test shows shorted contacts.

1. This mandatory. Refer to “adjustments and measurements” for the location of these switches.
2. When replacing the fuse, confirm that it has the appropriate rating for these models.
3. When replacing faulty switches, be sure the mounting tabs are not bent, broken or deficient in their ability to hold the switches.

8.5. Avoid inserting nails, wire etc. through any holes in the unit during operation.

Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any holes or gaps, because such objects may work as an antenna and cause microwave leakage.

8.6. Confirm after repair

1. After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing. Microwaves might leak if screws are not properly tightened.
2. Make sure that all electrical connections are tight before inserting the plug into the wall outlet.
3. Check for microwave energy leakage. (Refer to procedure for measuring microwave energy leakage).

CAUTION MICROWAVE RADIATION

DO NOT BECOME EXPOSED TO RADIATION FROM THE

MICROWAVE GENERATOR OR OTHER PARTS CONDUCTING MICROWAVE ENERGY

IMPORTANT NOTICE

The following components have potentials above 250V while is appliance is operated.

- Magnetron
- High voltage transformer (Located on inverter (U))
- High voltage diodes (Located on inverter (U))
- High voltage capacitors (Located on inverter (U))

Pay special attention in these areas.

When the appliance is operated with the door hinges or magnetron fixed incorrectly, the microwave leakage can reach more than 5mW/cm³. After repair or exchange, it is very important to check if the magnetron and the door hinges are correctly fixed.

8.7. Sharp Edges

Caution

Please use caution when unpacking, installing or moving the unit, as some exposed edges may be sharp to touch and cause injury if not handled with care.

9. Parts Replacement Procedure

9.1. Magnetron

1. Discharge the high voltage capacitors on the inverter circuit.
2. Remove the five screws shown in figure 1
3. Disconnect the two high voltage leads from the magnetron
4. Remove the four screws holding the magnetron as shown in figure 2

NOTE: After replacing the magnetron, tighten the mounting screws making sure that there is no gap between the waveguide and the magnetron to prevent microwave leakage.

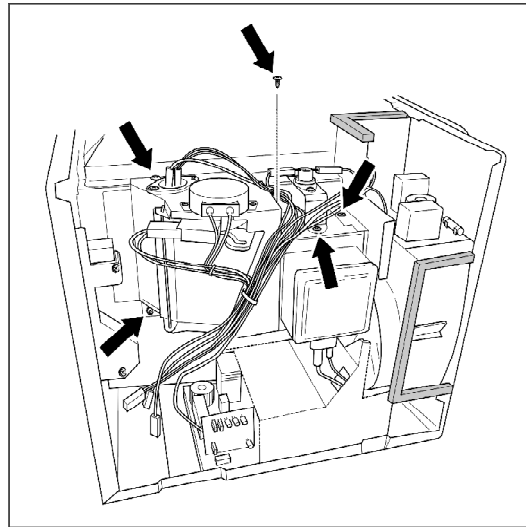
Caution

When replacing the magnetron, ensure that the antenna gasket is in place.

Note

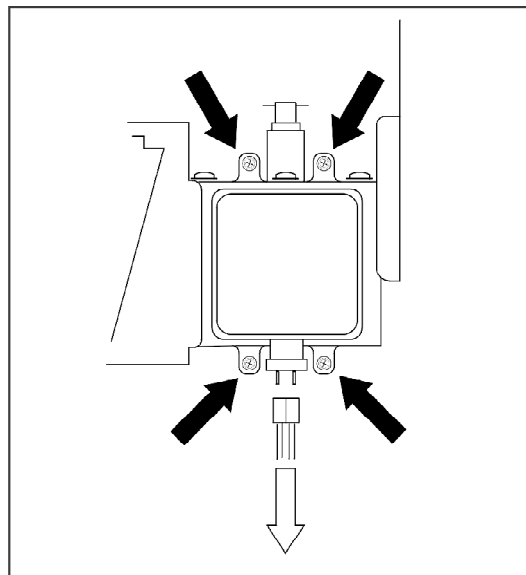
The magnetron used for this model is unique for the inverter power supply system. Make sure to use the magnetron as listed in the parts list.

Figure 1



Removal of the magnetron

Figure 2



Screws to remove the magnetron

9.2. Inverter power supply (U)

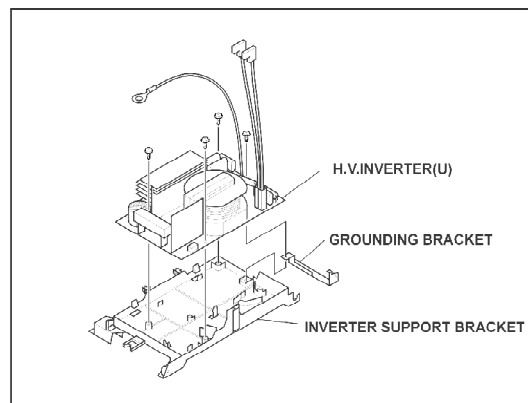
- 1. Discharge the high voltage capacitors**
- 2. Unplug the H.V. Lead wires from the magnetron**
- 3. Remove the connector CN701 and CN702 from the inverter PCB**
- 4. Remove the two screws holding the inverter base to the chassis (See figure 3)**
- 5. Remove the one screw holding the inverter earth wire to the oven chassis.**

6. Carefully remove the inverter PCB and support base from the oven.
7. Remove the air guide E by un-clipping the catch hooks
8. Remove the four screws holding the PCB to the inverter support base.

Caution when replacing the inverter power supply (U)

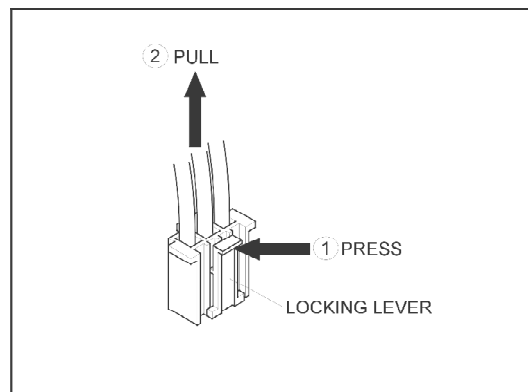
1. Make sure that grounding plate is in place
2. Securely tighten the grounding screw through the side of the chassis (Base).
3. Securely connect the 3 lead wire connectors
4. Make sure that the heat sink has enough space (gap) from the oven. Take care not to touch any lead wire to the aluminium heat sink because it is hot.

Figure 3



Removal of the inverter PCB

Figure 4



Disconnecting the PCB lock connector

9.3. Digital Programmer Circuit (DPC) and membrane key board.

NOTE: Ground any static electric built up on your body before handling the DPC.

- 1. Disconnect all connectors from the DPC.**
- 2. Remove the four screws holding the escutcheon base and slide the escutcheon base upward slightly. removal is easier with the door open.**
- 3. Release the flat cable.**
- 4. Remove the six screws holding the DPC DU assembly**
- 5. Remove the door lever**
- 6. Remove the nine screws holding the DPC AU assembly**

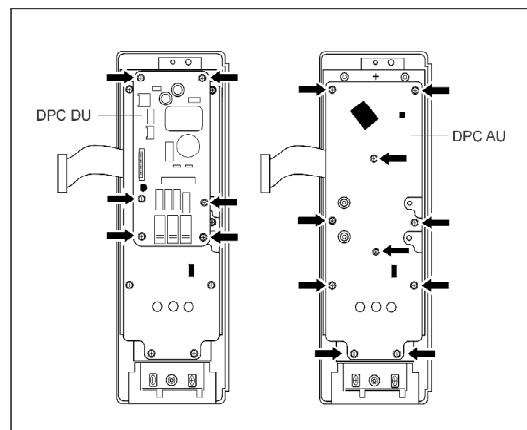
To remove escutcheon pad

- 1. Remove the escutcheon bracket from the escutcheon base by freeing the 4 catch hooks on the escutcheon base.**
- 2. Peel away the display window from the inside of the base.**
- 3. Remove the membrane assembly by pushing from the inside of the base and then peeling away from the outside surface.**

NOTE:

- 1. The escutcheon key board is attached to the escutcheon base with double faced adhesive tape. Therefore, applying hot air such as using a hair dryer is recommended for smoother removal**
- 2. When installing a new escutcheon key board, make sure that the surface of the escutcheon base is cleared sufficiently so that problems such as, shorted contacts and uneven surfaces can be avoided.**

Figure 5



Removal of DPC DU and DPC AU

9.4. Low voltage transformer and/or power relays

Note

Be sure to ground your body to discharge any static before handling the DPC.

1. Using a solder wick or a de soldering tool and a 30W soldering iron, carefully remove all solder from the terminal pins of the low voltage transformer and/or power relays.
2. With all of the terminal pins cleaned and separated from the DPC contacts, remove the defective transformer/power relays and install the new components making sure that the terminal pins are inserted completely. Carefully re solder all terminal contacts carefully.

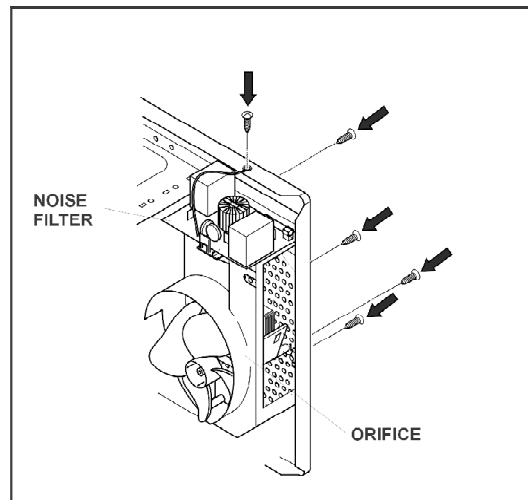
Note

Do not use a soldering iron or de soldering tool of more than 30 watts on DPC contacts

9.5. Fan Motor

1. Disconnect the two lead wires from the fan motor terminals
2. Remove the power cord by removing the two wires from the noise filter and the ground connection from the oven chassis.
3. Remove the noise filter
4. Remove the two screws holding the orifice assembly
5. Remove the two screws holding the fan motor assembly
6. Detach the orifice assembly and the fan motor assembly from the oven assembly.
7. Remove the fan blade from the fan motor by pulling outward.

Figure 6



Removing the fan motor

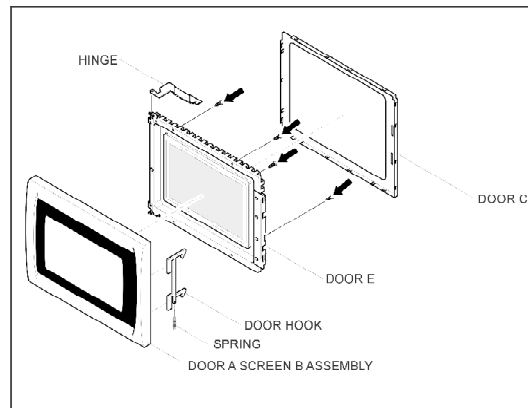
9.6. Door disassembly

1. Remove door C from door E by carefully pulling outward starting from the upper right hand corner using a flat blade screwdriver.
2. Remove four screws holding the door E to the door A assembly
3. Replace the door A and screen B as a complete unit.
4. Remove the door key and spring from the door E

After replacement of the defective component parts of the door, reassemble it and follow the instructions below for proper installation and adjustment so as to prevent excessive microwave leakage.

1. When mounting the door to the oven, be sure to adjust the door parallel to the bottom line of the oven face plate by moving the upper hinge in the direction necessary for proper alignment.
2. Adjust so that the door has no play between the inner door surface and the oven front surface. if the door assembly is not mounted properly, microwave power may leak from the clearance between the door and oven.
3. Perform the microwave leakage test.

Figure 7



Disassembly of the door

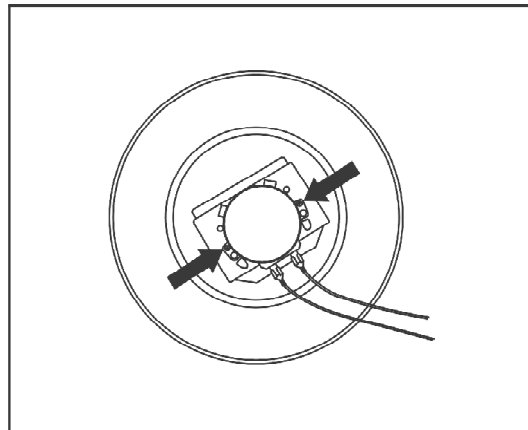
9.7. Turntable Motor

- 1. Remove the motor cover by breaking off at the 8 spots indicated by the arrows.**
- 2. Disconnect the two lead wires connected to the turntable motor**
- 3. Remove the turntable motor by removing the two screws**

Note: After breaking off the motor cover, make sure that cut-off portions are properly trimmed off or bent inside so that no sharp edges are exposed.

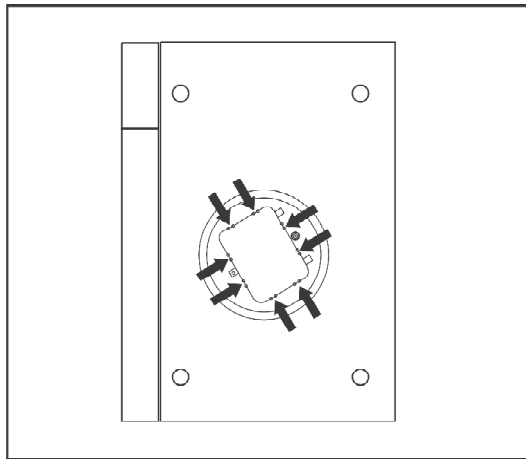
Note: To secure the motor cover use a 4 x 6 screw.

Figure 8



Removing the Turntable motor cover

Figure 9

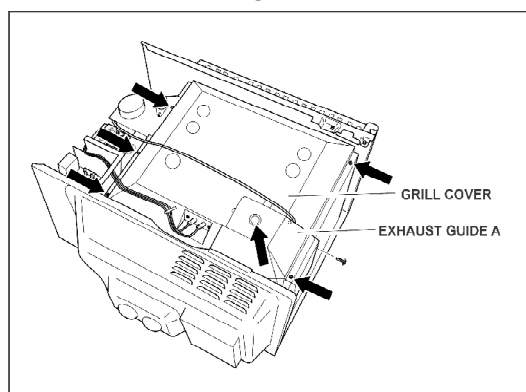


Two screws to remove the turntable motor

9.8. Quartz Heater

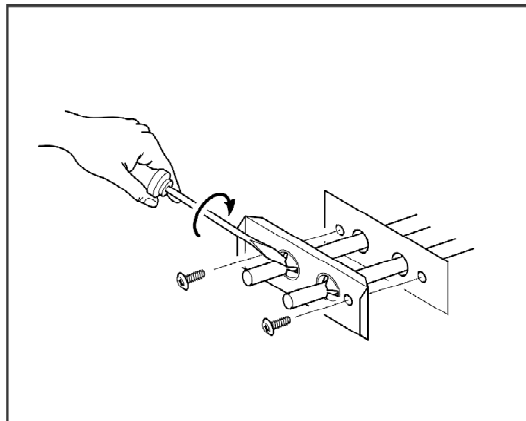
1. Remove the sensor cable from the DPC connector CN7.
2. Remove the exhaust guide A by removing the two screws shown in figure 10.
3. Disconnect the cables to the grill heater
4. Remove the grill cover by removing the 5 screws in figure 11
5. Remove the two screws holding the grill heater (Figure12).
6. Loosen the 2 screws holding the ceramic grill holders, turn the holders to release the grill element.
7. Remove the heater bracket D by using a flat blade screw driver to lever back the tabs.
8. The grill element can now be removed from inside the oven.

Figure 10



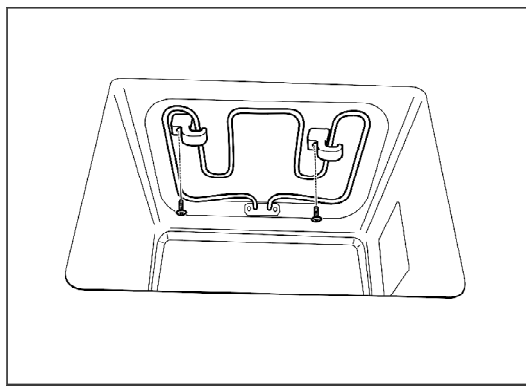
Removing the exhaust guide and grill cover

Figure 11



Removing the screws holding the grill heater

Figure 12



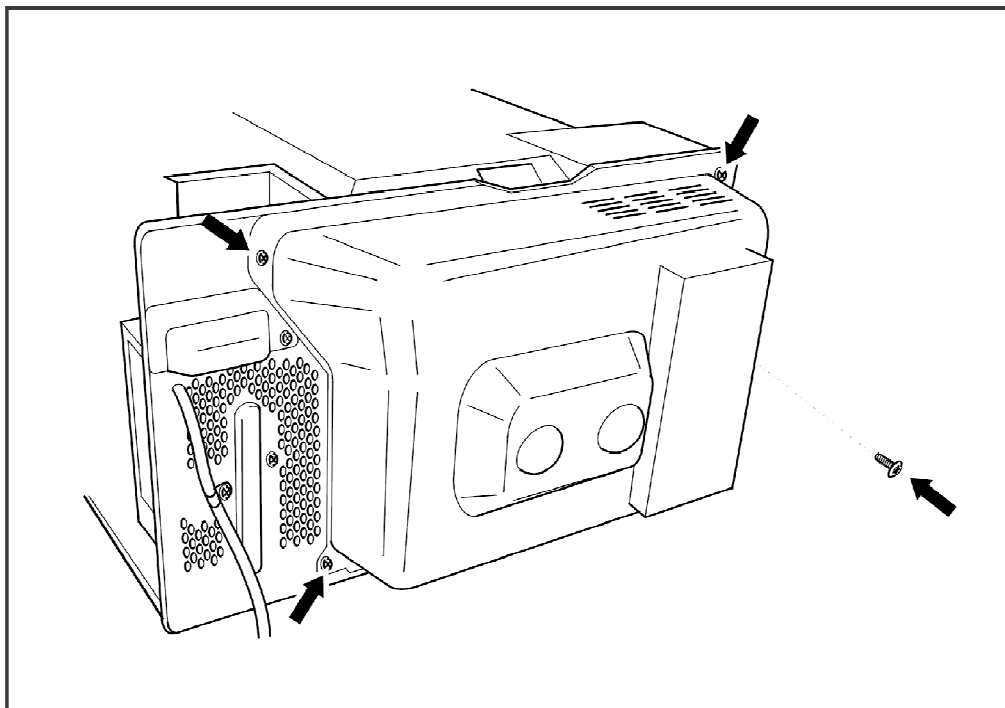
Removing the grill element

9.9. Convection Element And Circulation Fan Motor

1. Remove one screw to remove the the exhaust guide D. Figure 13.
2. Remove the rear heater cover by removing the three screws.
Figure 13
3. Remove the temperature sensor by removing the two screws.
Figure 14
4. Remove the power cord.
5. Remove the wire terminals from the circulation fan motor and the convection heater element.
6. Remove the four screws from the oven base. Figure 15
7. Carefully place hte oven onto its base and remove the backplate.
8. Remove the nut holding the circulation fan. Figure 16
9. Remove the circulation fan by removing the three screws. Figure 16

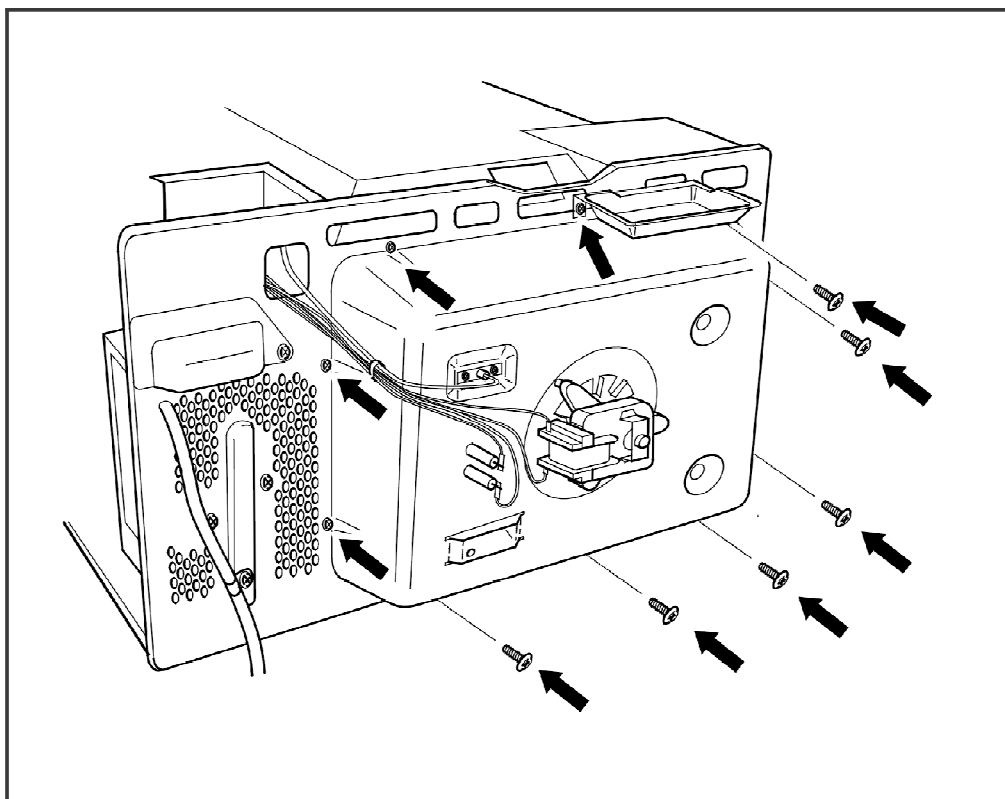
- 10. Remove the convection element by removing the two screws.**
Figure 16

Figure 13



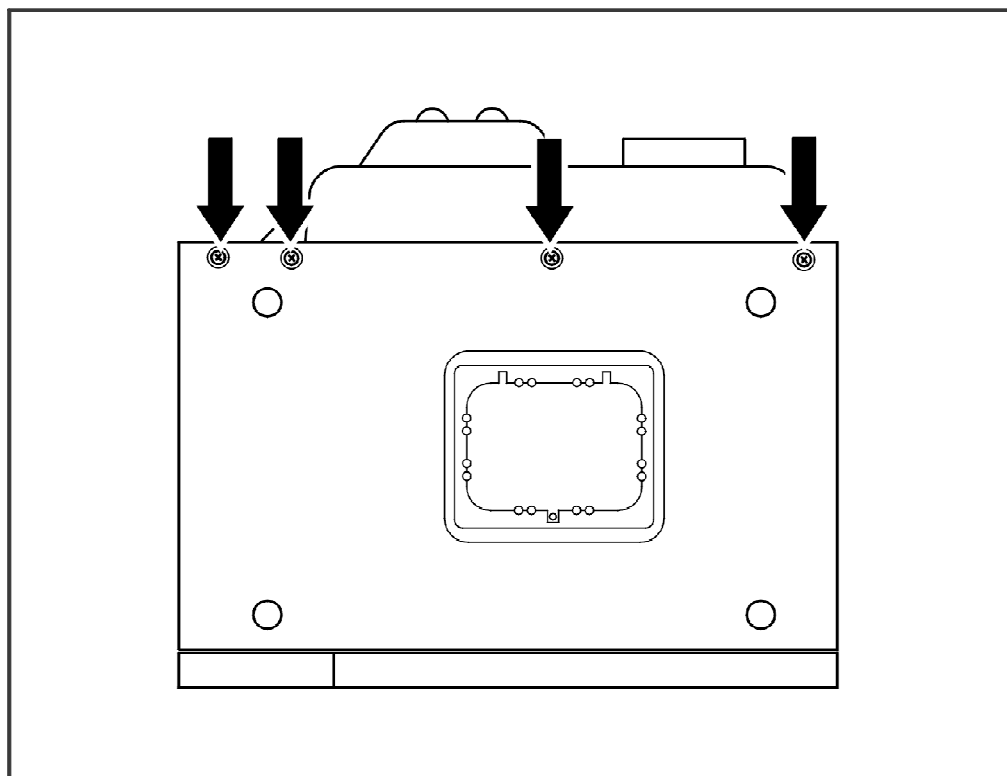
Removing the rear heater cover

Figure 14



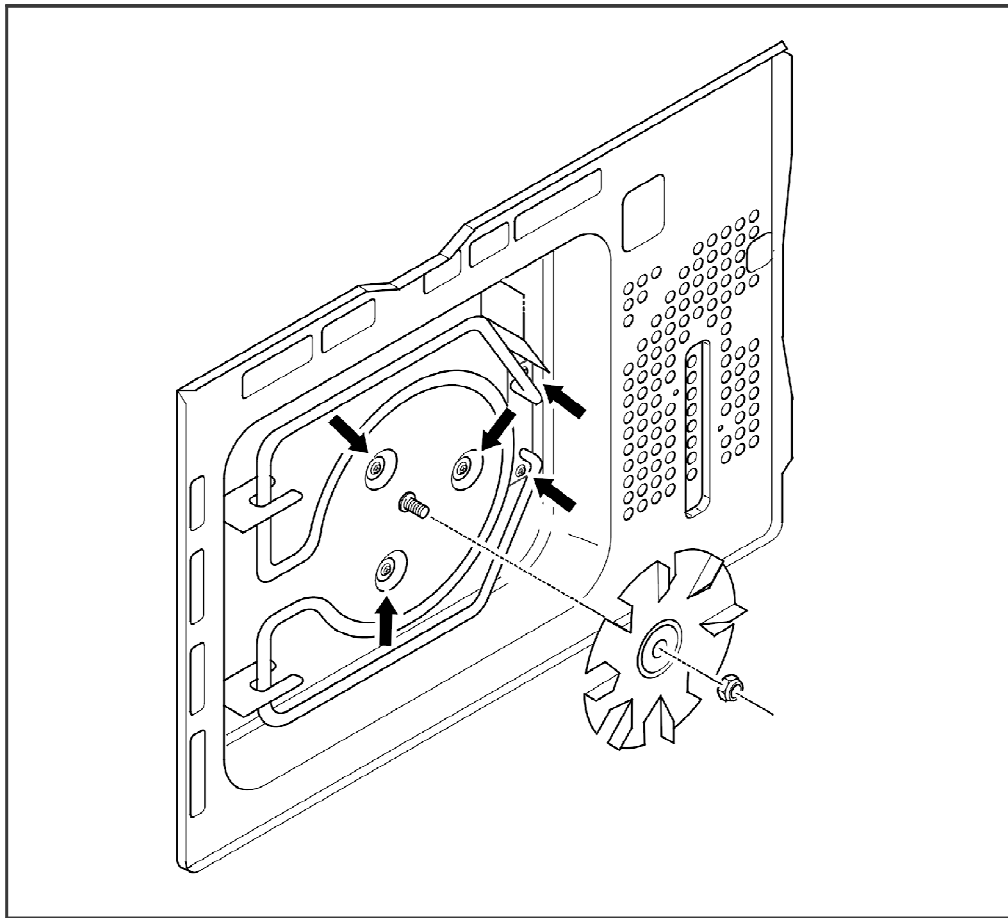
Removing the oven back plate

Figure 15



Removing the base plate

Figure 16



Removing the circulation motor

10. Component Test Procedure

Caution

1. High voltage is present at the high voltage terminal of the inverter unit, including the aluminium heat sink.
2. It is not necessary or advisable to attempt to measure this high voltage.
3. Before touching any oven components, or wiring, always unplug the oven from its power source and discharge the high voltage capacitors.

10.1. Primary Latch Switch, Secondary Latch Switch and power relay B interlocks.

1. Unplug the lead connectors to power relay B and verify the continuity of the power relay B 1-2 terminals.
2. Unplug the lead connectors to the primary latch switch and

secondary latch switch.

3. Test the continuity of the switches with the door open and closed with an ohm meter on the lowest scale.

Normal continuity readings should be as followed.

	Door Open	Door Closed
Primary Latch Switch	infinite Ω (Open)	0 Ω (Close)
Secondary Latch switch	infinite Ω (Open)	0 Ω (Close)
Power relay B	infinite Ω (Open)	infinite Ω (Close)

10.2. Short Switch and Monitor Circuit

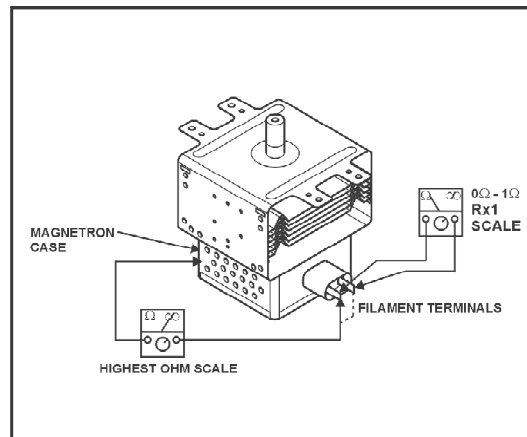
1. Unplug the lead wires from the HV inverter primary terminals.
2. Connect the test probes of the ohm meter to these leads
3. Test the continuity of the short switch with the door open and the door closed using the lowest ohm scale.

	Door Open	Door Closed
Monitor switch	0 Ω	infinite Ω

10.3. Magnetron

Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose an open filament or shorted magnetron.

1. Isolate the magnetron from the circuit by disconnecting the HV leads
2. A continuity check across the magnetron filament terminals should indicate one ohm or less
3. A continuity check between each filament terminal and the magnetron case should read open.



10.4. Push Button Keyboard

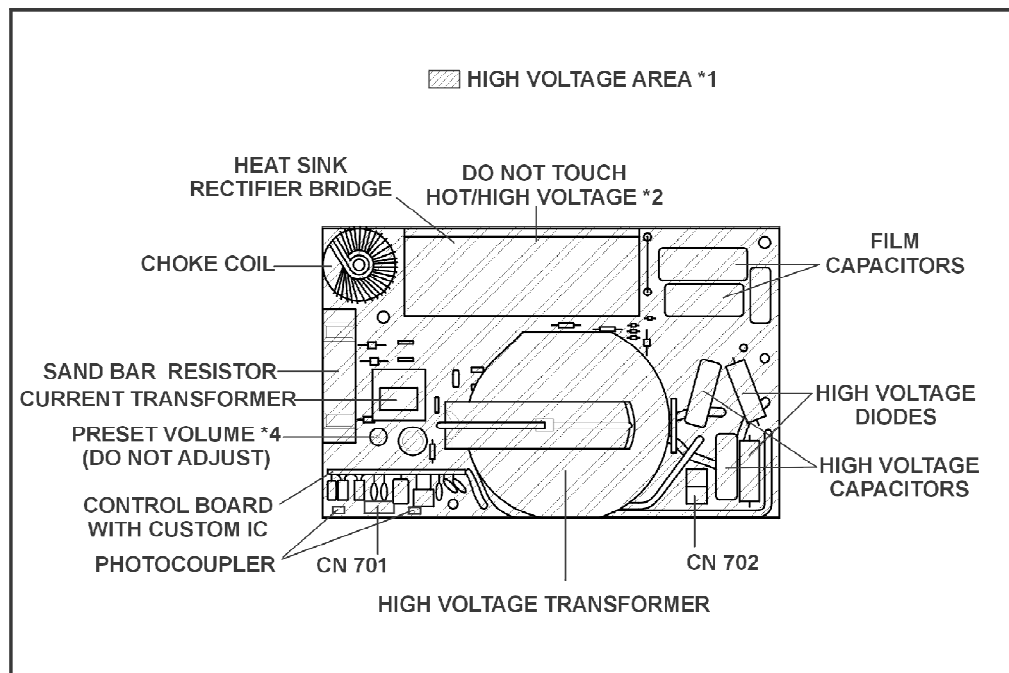
Check the continuity between the switch terminals, by tapping an appropriate pad on the keyboard. The keypad matrix is shown on .

10.5. Inverter Power Supply

Caution

DO NOT try to repair this inverter power supply). Replace as a whole H.V. Inverter Unit.

Figure 3



Inverter power supply diagram

10.6. Inverter Power Supply Unit

Warning

Do not attempt to make any measurements in the high voltage circuitry of the inverter or magnetron.

See troubleshooting of the inverter circuit and magnetron on page 27 to determine if the inverter power supply is still functioning.

10.7. Temperature Sensor

A temperature sensor is mounted on the rear of the oven. The resistance reading across the thermistor should read 300K ohm within a temperature range of 10 to 30 degrees centigrade. This would be the temperature range within a kitchen environment. If the resistance measured is outside this range the thermistor is defective and should be replaced.

NOTE: When measuring the resistance of the thermistor disconnect the connector from the digital programmer circuit.

NOTE: If the microwave oven has been operated allow to cool to room temperature before attempting to measure the thermistor resistance.

10.8. Humidity sensor and digital programmer circuit NN-A880WB

1. Check the resistance across the sensor heater terminals. Normal cold resistance should read approximately 4.5 ohms.
2. Check the voltage across the sensor heater terminals. It should read approximately 2.5VDC
3. In order to determine if the auto cooking by humidity sensor is working, perform the following test. /
 1. Place a water load (150cc) in the oven.
 2. Press the auto reheat panel.
 3. Press the start pad
 4. The humidity sensor detects steam about 2 to 4 minutes after the start pad has been pressed.
 5. The auto cooking (T1) automatically switches to cooking time. (T2)
 6. The remaining cooking time T2 appears in the display window. If 48s -1min 36 secs appears in the display , the humidity sensor function is normal.

11. Measurements and Adjustments

Warning

- For continued protection against radiation hazard, replace only with identical parts.
- When the 10 amp fuse is blown due to the operation of the short switch, you must replace the primary latch switch and short switch. Then follow the installation procedures below.
- Interlock switch replacement - In replacing faulty switches, be sure

mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.

- Refer to the schematic and wiring diagram to ensure proper connection

11.1. Installation of primary latch switch, secondary latch switch and short switch.

1. When mounting the primary latch switch, secondary latch switch and short switch to the door hook assembly. Follow the instructions in figure 1.

NOTE: No specific adjustment during the insulation of each switch into the door hook is necessary.

2. When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of the arrow in figure 1. Ensuring the door does not have any play in it. Check for play by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.
3. Reconnect the short switch, primary switch and secondary latch switches and check the continuity of the monitor circuit and latch switches by following the component test procedures on page.

11.2. Measurement of microwave output

The output power of the magnetron can be determined by performing the IEC standard test. However, due to the complexity of the IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary equipment:

- 1 liter beaker
- Glass thermometer
- Wrist watch or stop watch

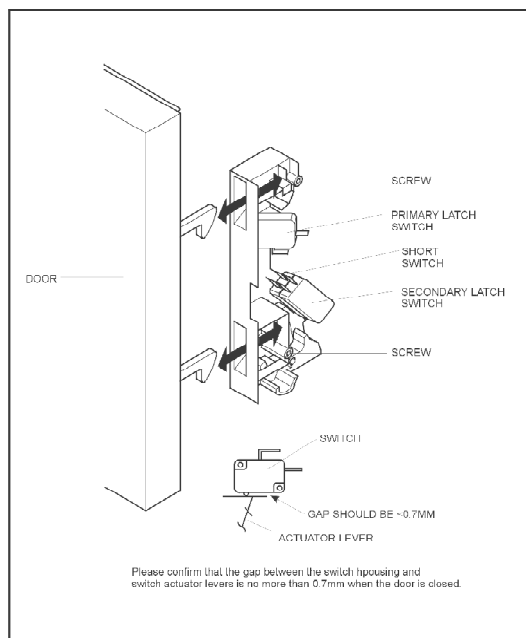
NOTE: Check the line voltage under load. Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurate as possible.

1. Fill the beaker with exactly one liter of tap water. Stir the water using the thermometer and record the beakers temperature (Recorded as T1)
2. Place the beaker on the center of the glass cook plate.
3. Stir the water again and read the temperature of the beaker

(Recorded as T2)

4. The normal temperature rise at the high power position for each model is shown in the table. (Figure 2)

Figure 1



Adjustment of latch switch assembly

RATED OUTPUT	TEMPERATURE RISE
1000W	8°C

12. Troubleshooting Guide

Fuses are not blown

Fuses are not blown

Other problems

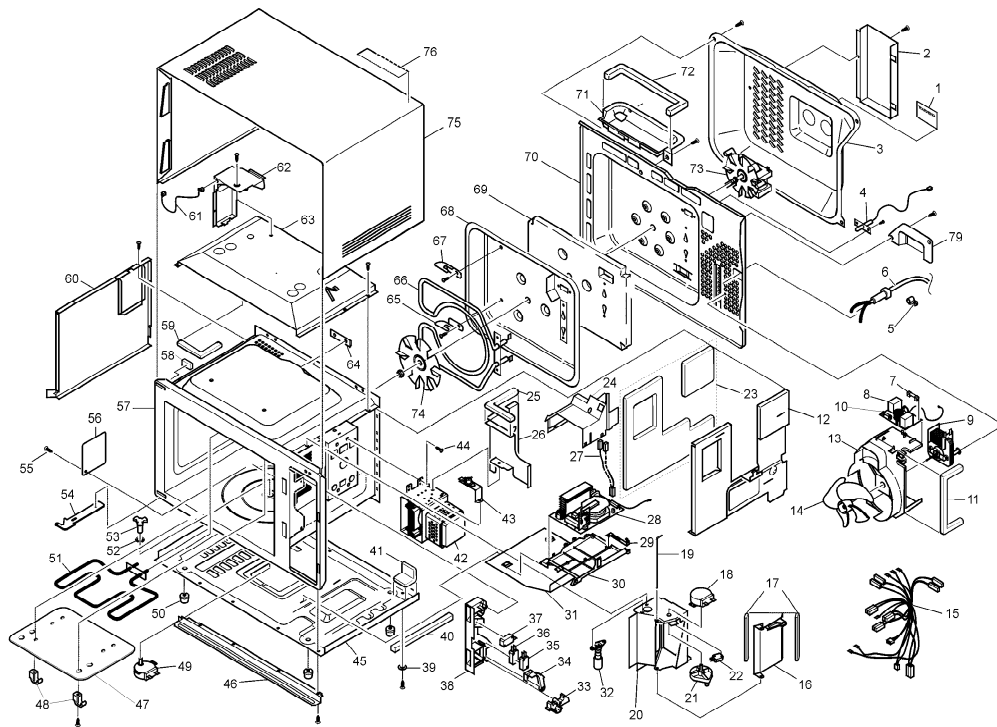
Inverter circuit troubleshooting

Alternative method for troubleshooting the inverter circuit

13. Digital Programmer Troubleshooting Guide

How to check semiconductors

14. Exploded View



15. Main Parts List

1. Part numbers are indicated on most mechanical parts. Please use these part numbers for part orders. Do not use the description of the part.

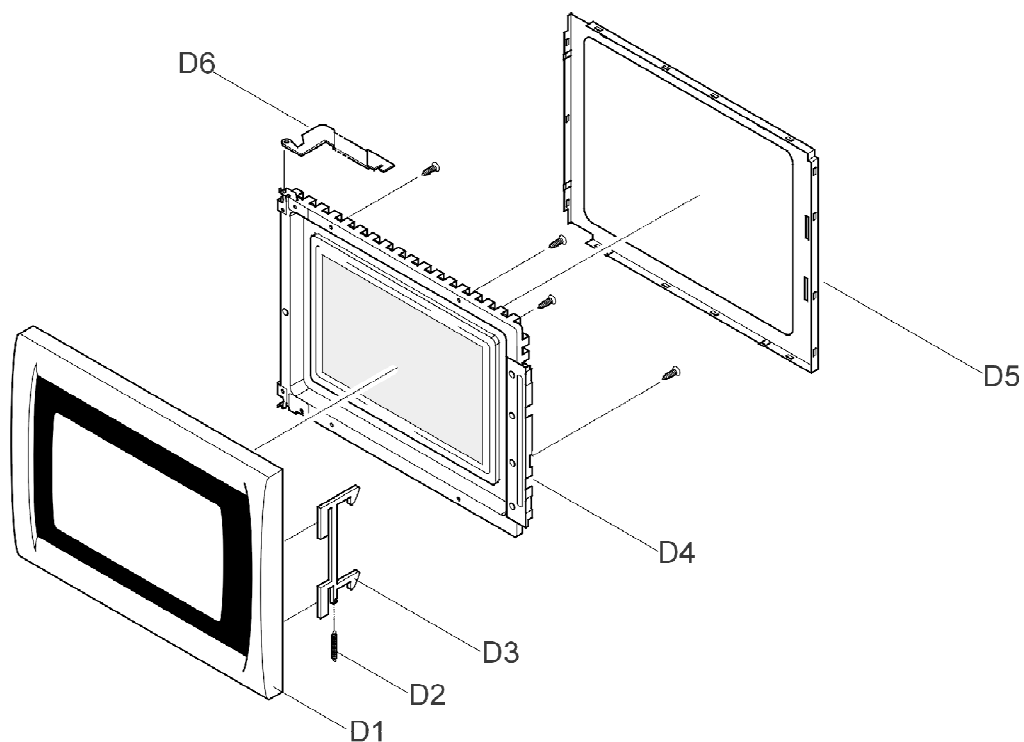
Important safety notice

1. Components identified by! mark have special characteristics important for safety. When replacing any of these components, use only the manufacturers specified

Ref. No.	Part No.	Description	Qty	Remarks
1	E00064080BP	WARNING LABEL	1	
2	E41199000BP	EXHAUST GUIDE D	1	
3	E10589000BP	BACK PANEL COVER	1	
4	E605A4V20BP	THERMISTER	1	
5	AEE9108A20GN	HOLDER (P CLIP)	1	
6	E900C4V20BP	POWER CORD SUPPLY	1	
7	E67597550GP	FUSE 10A	1	
8	E607X4V20BP	NOISE FILTER	1	
9	E400A4760JP	FAN MOTOR	1	
10	AEE6230P10GN	FUSE 16A	1	
11	E09020000AP	CUSHION RUBBER	1	
12	E22369000BP	RIGHT HEATER PANEL	1	
13	E41444V20GP	ORIFICE	1	
14	E40086430GP	FAN	1	
15	E030A4V20BP	LEAD WIRE	1	
16	E41739000BP	SHUTTER FLAP	1	
17	E09620000AH	CUSHION RUBBER	2	
18	E63268960JP	MOTOR	1	
19	E41749000BP	SHUTTER PIN	1	
20	E400E9000BP	AIR GUIDE	1	
21	E48236750BP	CAM A	1	
22	E61425180AP	SHUTTER SWITCH	1	
23	E22439000BP	ADIABATIC MATERIAL A	1	
24	E40474V00BP	AIR GUIDE E	1	
25	E09020000AK	CUSHION RUBBER	1	
26	E40309000GP	AIR GUIDE D	1	
27	E030E4V20BP	HV LEAD WIRE	1	
28	E606Y4V20GP	INVERTER	1	
29	E66014V00BP	INVERTER EARTH BRACKET	1	
30	E65854V00BP	INVERTER SUPPORT BRACKET	1	
31	E01214V20BP	ADAPTOR PLATE	1	
32	E610T6700BP	OVEN LAMP	1	
33	E31374830AP	HOOK SPACER B	1	
34	E31384830AP	HOOK SPACER C	1	
35	E61425180AP	SECONDARY LATCH SWITCH	1	
36	E61785180AP	SHORT SWITCH	1	
37	AEE6142-1450	PRIMARY SWITCH	1	
38	E30208000BP	DOOR HOOK A	1	
39	E11088020BP	FIBRE WASHER	4	
40	E09020000AL	CUSHION RUBBER	1	
41	E09020000ED	CUSHION RUBBER	1	
42	2M236-M1G	MAGNETRON	1	
43	E610U9000BP	THERMAL CUTOUT ASSY	1	
44	XTWANE4+12B	SCREW	4	
45	E10019000GP	BASE PLATE	1	
46	E16079000BP	DRIP TRAY	1	
47	E21449000BP	SELF CLEAN.PANEL	1	
48	AEE6418Z70BP	HEATER SUPPORT	2	
49	E63268960JP	TURNTABLE MOTOR	1	
50	AEE1008-5S1	RUBBER FOOT	4	

Ref. No.	Part No.	Description	Qty	Remarks
51	E630G9000BP	GRILL HEATER	1	
52	AEE2177-F80	PULLEY SHAFT WASHER	1	
53	E21315870GP	PULLEY SHAFT	1	
54	E30076700AP	HINGE B	1	
55	XSN4+6ZS	SCREW	1	
56	E20559000BP	COVER A	1	
57	E200A4V20BP	OVEN CAVITY	1	
58	E09030000CD	CUSHION RUBBER	1	
59	E22589000BP	ADIABATIC MATERIAL	1	
60	E22379000BP	LEFT HEATER PANEL	1	
61	E030H9000BP	HUMIDITY SENSOR	1	 NN-A880WB
62	E40249000GP	EXHAUST GUIDE A	1	
63	E202N9000BP	UPPER HEATER COVER	1	
64	E64179000BP	HEATER BRACKET A	1	
65	E67579000BP	HEATER BRKT D	1	
66	E630H9000BP	CONVECTION HEATER	1	
67	E64189000BP	HEATER BRACKET B	1	
68	E607F9000BP	HEATER COVER	1	
69	E22429000BP	ADIABATIC MATERIAL	1	
70	E20339000BP	HEATER COVER B	1	
71	E41079000GP	EXHAUST GUIDE B	1	
72	E09230000AQ	CUSHION RUBBER	1	
73	E490S8020GP	CONV MOTOR	1	
74	E22399000BP	CIRCUALTION FAN	1	
75	E110D4V30HBP	OUTER PANEL	1	NN-A880WB NN-A850WB
75	E110D4V30BP	OUTER PANEL	1	NN-A850CB
76	E01507550BP	WARNING LABEL	1	 NN-A880WB NN-A850WB
76	E01507560BP	WARNING LABEL	1	 NN-A850CB

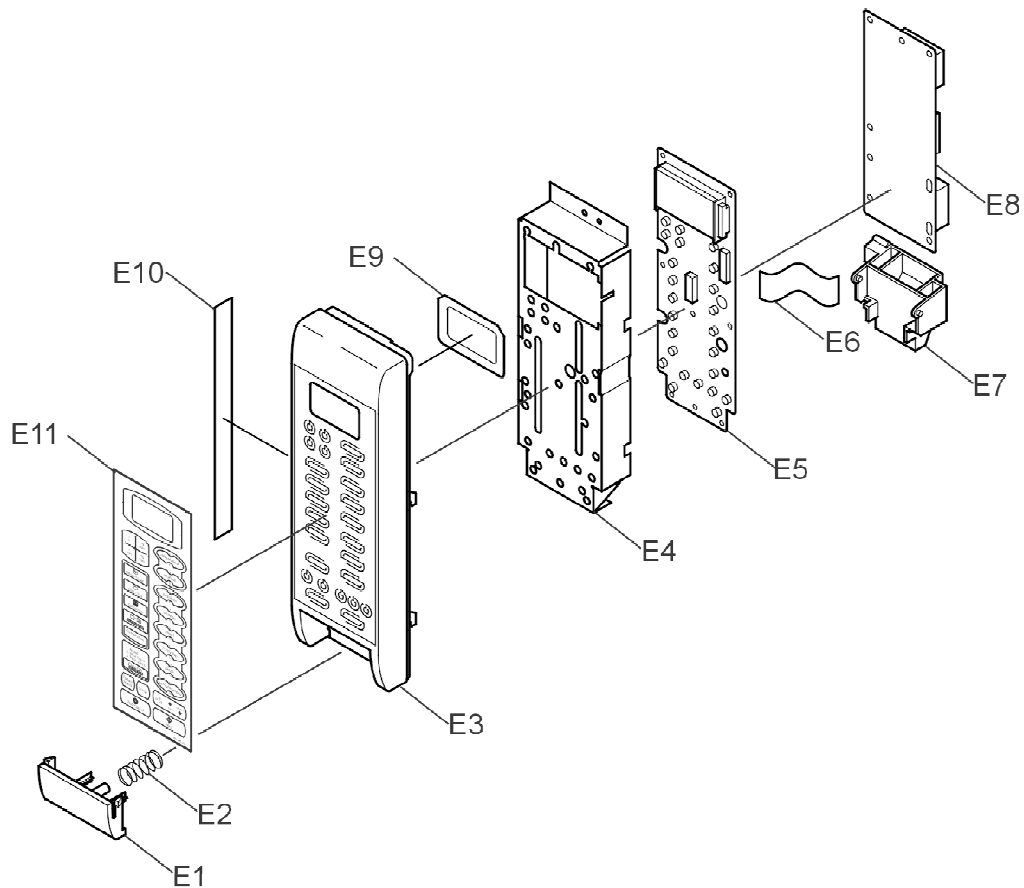
16. Door Assembly



Ref	Part	Description	Qty	Remarks
D1	E302A4V20HBP	DOOR A ASSYM	1	NN-A880WB NN-A850WB
D1	E302A4V20BP	DOOR A ASSYM	1	NN-A850CB
D2	E30214000AP	DOOR KEY SPRING	1	
D3	E30188000BP	DOOR KEY A	1	
D4	E302K9000BP	DOOR E	1	⚠
D5	E30859000BP	DOOR C	1	
D6	E30067300AP	HINGE	1	

When ordering any door component also order door C, this part may become damaged during disassembly of the door.

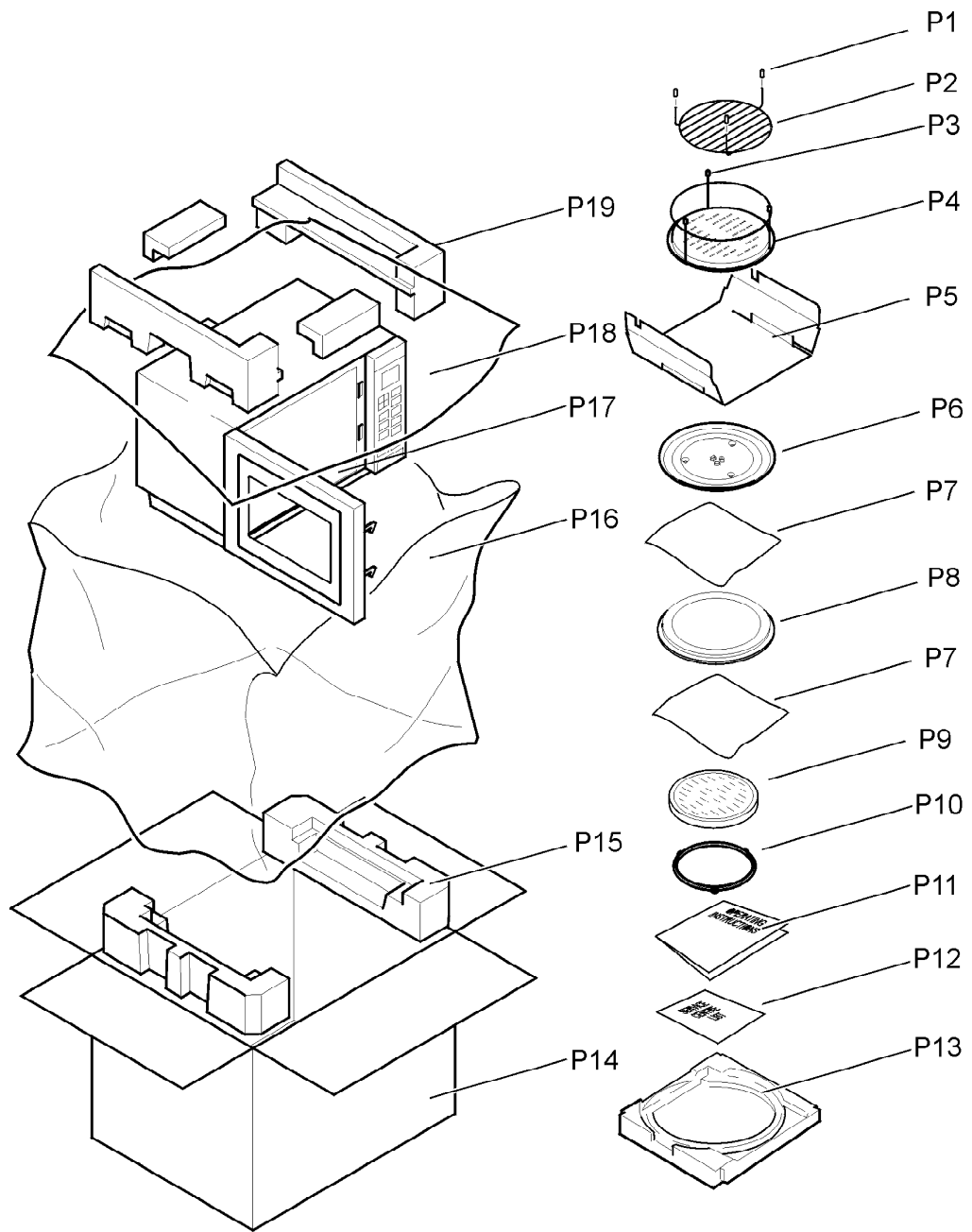
17. Escutcheon Base Assembly



Ref. No.	Part	Description	Qty	Remarks
E1	E80724V20HBP	DOOR OPENING BUTTON	1	NN-A880WB NN-A850WB
E1	E80724V20BP	DOOR OPENING BUTTON	1	NN-A850CB
E2	E80378A0AG	SPRING	1	
E3	E80344V20HBP	ESCUTCHEON BASE	1	NN-A880WB NN-A850WB
E3	E80344V20BP	ESCUTCHEON BASE	1	NN-A850CB
E4	E81274V20BP	ESC BACK PLATE	1	
E5	E603L4V20BP	P C B AU	1	⚠ NN-A880WB
E5	E603L4V30BP	P C B AU	1	⚠ NN-A850WB NN-A850CB
E6	E6629-1600	RIBBON CABLE	1	
E7	E82564V20BP	DOOR OPENING LEVER	1	
E8	E603Y4V20BP	P C B DU	1	⚠ NN-A880WB
E8	E603Y4V30BP	P C B DU	1	⚠ NN-A850WB NN-A850CB
E9	E83264V20BP	DISPLAY SHEET	1	
E10	E00074V30BP	NAME PLATE	1	
E11	E83374V20HBP	ESCUTCHEON SHEET	1	NN-A880WB
E11	E83374V30HBP	ESCUTCHEON SHEET	1	NN-A850WB
E11	E83374V30BP	ESCUTCHEON SHEET	1	NN-A850CB

When ordering the escutchoen base also order the name plate

18. Packing And Accessories

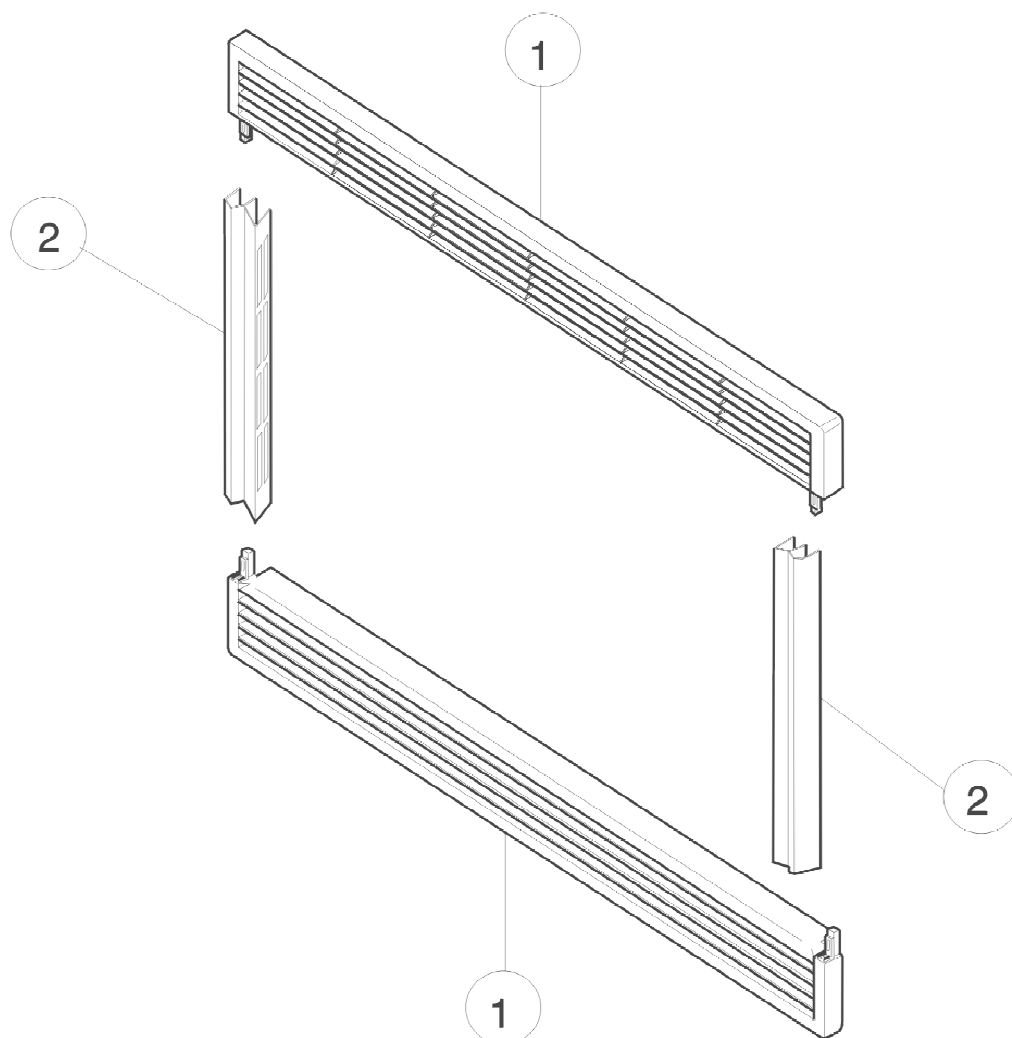


Ref	Part	Description	Qty	Remarks
P1	E06435870GS	RUBBER FOOT (RED)	3	
P2	E060V8020BP	WIRE RACK LOW	1	
P3	E06435870SP	RUBBER FOOT (BLACK)	3	
P4	E060V6520BP	WIRE RACK HIGH	1	
P5	E01089000BP	TRAY PACKING	1	
P6	E06014N30BP	GLASS TRAY	1	
P7	E0212-1520	FOAM SHEET	1	
P8	E06015020GP	ENAMEL TRAY	1	
P9	E06485020AP	SPLATTER TRAY	1	
P10	E290D5850GP	ROLLER RING	1	
P11	E00034V20BP	OPERATING INSTRUCTIONS/COOKBOOK	1	
P12	E01695750BP	SERVICE LIST	1	
P13	E01136700BP	TRAY STYROL	1	
P14	E01024V20HBP	CARTON BOX	1	NN-A880WB
P14	E01024V30HBP	CARTON BOX	1	NN-A850WB
P14	E01024V30BP	CARTON BOX	1	NN-A850CB
P15	E01059000BP	LOWER FILLER	1	
P16	E01069000BP	COVER POLYTHENE	1	
P17	E01079000BP	DOOR SHEET	1	
P18	E01926430GP	PROTECTOR SHEET	1	NN-A850CB
P19	E01049000BP	UPPER FILLER	1	

19. REF No 8 E607X4V20BP Noise Filter (U)

Ref No	Part No.	Description	Qty	Remarks
R1	ERG1SJ753P	Resistor	1	75K Ω W
C1 & C2	QETJ5225KRP2CE	Capacitor	2	2.2 μ F
C3 & C4	ECKMNA472ME	Capacitor	2	4700pF 250V AC
L1	SC-08-E203A	Inductor	1	2.4mH
F1	E62316010BP	Fuse Holder	2	

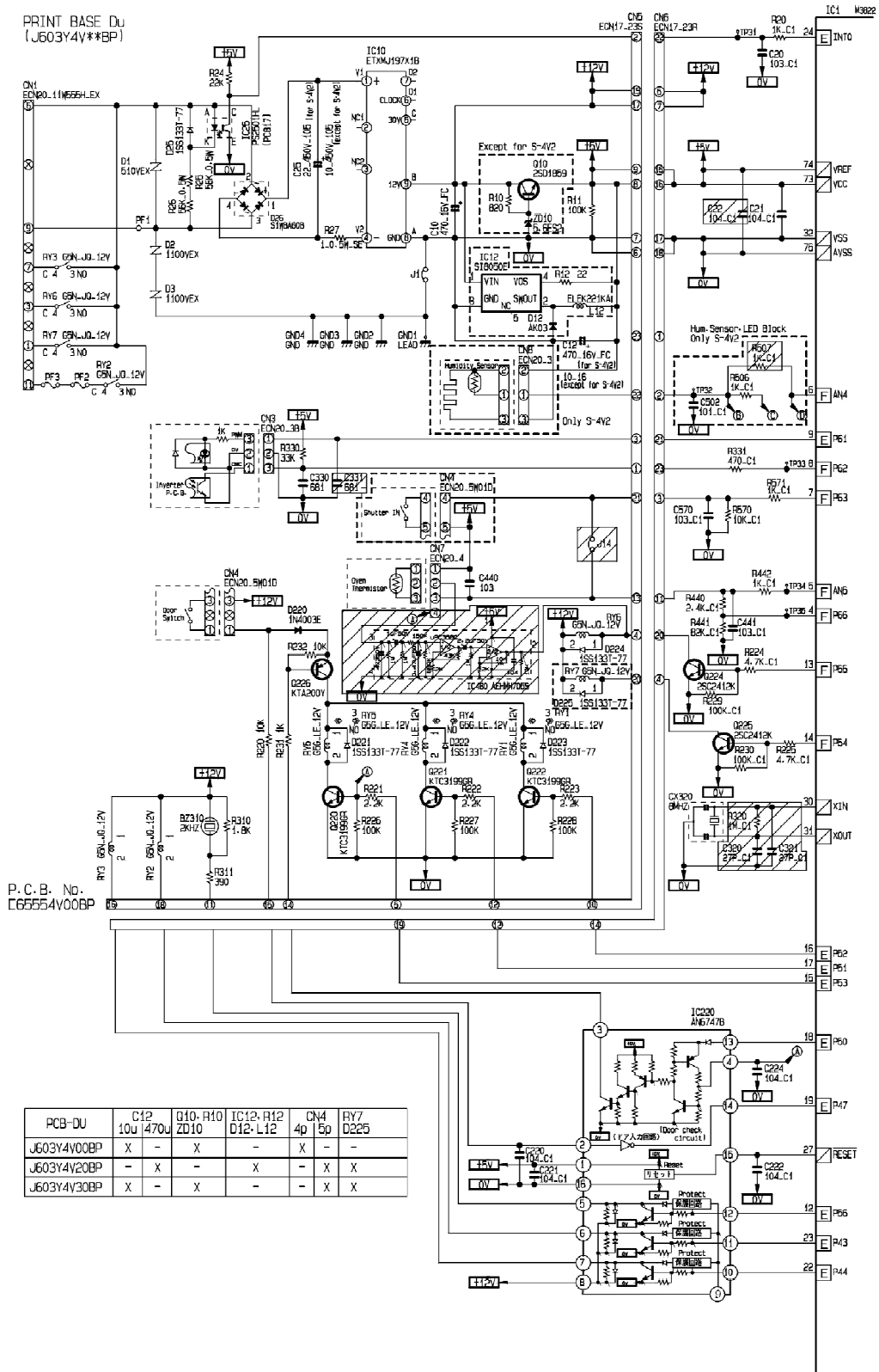
20. Parts List For Microwave Oven Trim Kits

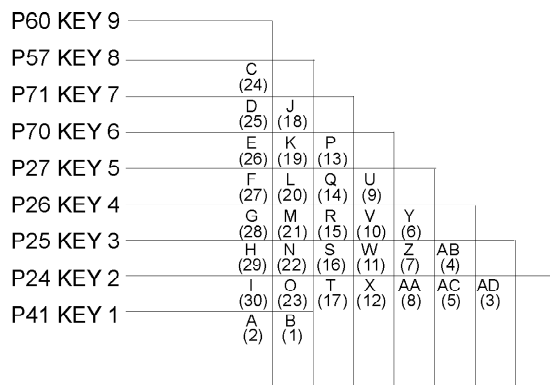


Trim Model Number	Top And Bottom Strip REF No 1	Set	Side strip REF No 2	Set	Microwave Oven Model Number
NN-TKA80W	E1603A510HBP	1	E1601A540HBP	1	NN-A880WB NN-A850WB
NN-TKA80C	E1603A510BP	1	E1601A540BP	1	NN-A850CB
Instalation Guide			A0003A810BP		

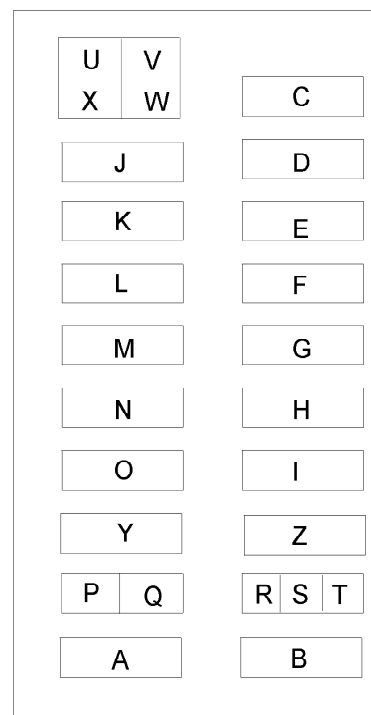
21. Digital Programmer Circuit Schematic

PRINT BASE DU
(J603Y4V**BP)





B(1)	START
A(2)	RESET
AA(3)	
AB(4)	
AC(5)	
Y(6)	AUTO (W DEF)
Z(7)	AUTO
AD(8)	
U(9)	1HOUR
V(10)	10 MIN
W(11)	10 SEC
X(12)	1 MIN
P(13)	STAND
Q(14)	CLOCK
R(15)	LB/OZ
S(16)	UP
T(17)	DOWN
J(18)	POWER
K(19)	GRILL
L(20)	CONVECTION
M(21)	GRILL CONV
N(22)	COMBINATION
O(23)	
C(24)	AUTO
D(25)	AUTO
E(26)	AUTO
F(27)	AUTO
G(28)	AUTO
H(29)	AUTO
I(30)	AUTO



23. Digital Programmer Circuit Parts

23.1. E603L4V20BP E603L4V30BP DPCAUI

Reference		Part Number	Description	J603L 4V20BP	J603L 4V30BP
C502		AECU1F101J50	100pF Chip Capacitor	1	0
C40-C48 C110 C20 C441 C570		AECU1F103Z50	10nF Chip Capacitor	13	13
C501		AECU1F103Z50	10nF Chip Capacitor	1	0
C220 C221 C222 C224 C21		AECU1F104Z25	100nF Chip Capacitor	5	5
C130, C500		AECU1F104Z25	100nF Chip Capacitor	2	0
R111-R113 R20 R442 R571		AERJ3GSYJ102	1K Chip Resistor	6	6
R506		AERJ3GSYJ102	1K Chip Resistor	1	0
R132,R133,R570		AERJ3GSYJ103	10K Chip Resistor	3	3
R500,R501,R505		AERJ3GSYJ103	10K Chip Resistor	3	0
R650,R229,R230		AERJ3GSYJ104	100K Chip Resistor	3	3
R517,R518		AERJ3GSYJ105	1M Chip Resistor	2	0
R340		AERJ3GSYJ103	10K Chip Resistor	1	1
R509		AERJ3GSYJ113	11K Chip Resistor	1	0
R180,R181		AERJ3GSYJ181	180 Chip Resistor	2	2
R135 R136 R142 R143		AERJ3GSYJ181	180 Chip Resistor	4	0
R513		AERJ3GSYJ184	180K Chip Resistor	1	0
R519		AERJ3GSYJ205	2M Chip Resistor	1	0
R110		AERJ3GSYJ220	22 Chip Resistor	1	1
R134		AERJ3GSYJ220	22 Chip Resistor	1	0
R510		AERJ3GSYJ223	22K Chip Resistor	1	0
R440		AERJ3EKF2401	2.40K Chip Resistor 1%	1	1
R502		AERJ3GSYJ272	2.7K Chip Resistor	1	0
R137-R141		AERJ3GSYJ331	330 Chip Resistor	5	0
R514		AERJ3GSYJ364	360K Chip Resistor	1	0
R331		AERJ3GSYJ471	470 Chip Resistor	1	1
R224,R225		AERJ3GSYJ472	4.7K Chip Resistor	2	2
R511		AERJ3GSYJ473	47K Chip Resistor	1	0
R516		AERJ3GSYJ514	510K Chip Resistor	1	0
R508		AERJ3GSYJ562	5.6K Chip Resistor	1	0
R40-R48		AERJ3GSYJ683	68K Chip Resistor	9	9
R515		AERJ3GSYJ754	750K Chip Resistor	1	0
R503		AERJ3GSYJ822	8.2K Chip Resistor	1	0
R441		AERJ3EKF8202	82.0K Chip Resistor 1%	1	1
R512		AERJ3GSYJ913	91K Chip Resistor	1	0
Q503		AESSRB421D	Shottky diode	1	0
Q40 Q41 Q224 Q225		2SC2412KT146	NPN Transistor	4	4
Q500-Q502		AESCFMG8AE	Dual NPN Digi-Tr	3	0
IC500		AEICUPC358G2	OP-AMP	1	0
IC130		AEICBU2090F	IC (Serial-Parallel)	1	0
IC1	!	AEIC8227H205	LSI M3822 (32K)	1	1
CX320		EFOMC8004T4	Ceramic Resonator	1	1
SW40-52 SW54-65		EVQ11L05R	Push Switch	25	25
D132-D135		AELN4214R	RED LED (Diffused)	4	0
D131,D138		AESQSEL4414E	GREEN LED (Clear)	2	0
D130,D137		AESQSEL4914A	ORANGE LED (Clear)	2	0
D180-D182		AESQTLGE260T	Green LED (backlight)	3	3
DISP110		AEDDHL4V00BP	LCD	1	1
		A611A4J01XN	Display Holder Unit	1	1
IC220		AN6747B	Custom IC	1	1
CN6		AEEM23FESVKN	CONNECTOR	1	1
JPR1		ERDS2TJ1R0T	1 ohm Carbon Resistor	1	0

23.2. E603Y4V20BP E603Y4V30BP DPC DU

Reference		Part Number	Description	J603Y 4V20BP	J603Y 4V30BP
ZD10		AESZMTZ5R6B	Zener Diode	0	1
D221-D225		AESS133T-77	Silicon Diode	5	5
D25		AESS133T-77	Silicon Diode	1	1
D220		AESS1N4003E	Silicon Diode	1	1
D12		AESSAK03	Shottky Diode	1	0
C330		ECBT1H681KB5	680PF Capacitor	1	1
C331		ECBT1H681KB5	680PF Capacitor	0	0
C440		ECBT1E103ZF5	10nF Capacitor	1	1
R25,R26		ERDS1FJ563T	56K 1/2 Watt Resistor	2	2
R220,R232		ERDS2TJ103T	10K Resistor	2	2
R11,R226-R228		ERDS2TJ104T	100K Resistor	4	4
R12		ERDS2TJ220T	22 Resistor	1	0
R231		ERDS2TJ102T	1.0K Resistor	1	1
R221-R223		ERDS2TJ222T	2.2K Resistor	3	3
R24		ERDS2TJ223T	22K Resistor	1	1
R330		ERDS2TJ333T	33K Carbon Resistor	1	1
R311		ERDS2TJ391T	390 Resistor	1	1
R10		ERDS2TJ821T	820 Resistor	0	1
R310		ERSD2TJ182T	1.8K Resistor	1	1
Q10		2SD1859TV2	Transistor	0	1
Q226		AESA2A200Y	PNP Transistor	1	1
Q220-Q222		AESCKTC3199GR	NPN Transistor	3	3
C10		EEUFC1C471B	470uF 16 V Elect Capa	1	1
C12		EEUFC1C471B	470uF 16 V Elect Capa	1	0
C12		ECEA1CKA100B	10uF 16V Electrolytic Capacitor	0	1
R27		ERX12SJ1R0E	1R 1/2 Watt Resistor	1	1
L12		ELEKN221KA	220uH	1	0
CN3		AEEMXF00703B	3 Pin Connector (Inverter)	1	1
CN8		AEEMMF00703W	3 Pin Connector (Figaro Sensor)	1	0
CN7		AEEMMF00703R	3 Pin Connector (OvenThermistor)	1	1
CN4		AEEMXF01D05W	5 Pin Connector	1	1
C25		A6219-1850	Capacitor Cover (small)	0	1
C26		A62194J00XN	Capacitor Cover (large)	1	0
RY2 RY3 RY6 RY7		AEBGG5N1A12	12 V Relay	4	4
RY1,RY4,RY5		AEGG5G1A12	12 V Relay	3	3
CN5		AEEM23FEBVKN	23 Pin Connector	1	1
CN5		AEEM19FEBVKN	19 Pin Connector	0	0
CN1		AEEMXD55511W	11 Pin Connector	1	1
IC25		AEICP25011HL	Photocoupler IC	1	1
D26		AESTS1WBA60B	Diode Bridge (600V)	1	1
IC12		AEICSI8050E	IC (DC-DC conveter)	1	0
C25		ECA2WHG100E	10uF 450V Electrolytic Capacitor	0	1
C25		ECA2WHG220E	22uF 450V Electrolytic Capacitor	1	0
BZ310		EFBAH20C001	2KHz Buzzer	1	1
D2,D3		ERZV10D112C1	Varistor 1100V	2	2
D1		ERZV10D511CS	Varistor 510V	1	1
IC10		ETXMJ197X1BG	Switching Power Supply	1	1